

WA School of Mines: Minerals, Energy & Chemical Engineering

**Identifying Western Australian Offshore Oil and Gas Workers Mental Health
Hazards and Risk Control Measures**

Emma Caroline D'Antoine

ORCID iD: 0000-0002-4003-0875

**This Thesis is presented for the Degree of Doctor of Philosophy
of Curtin University**

5 June 2024

DECLARATION

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

The research presented and reported in this thesis was conducted in accordance with the National Statement on Ethical Conduct in Human Research (2023). The proposed research study received human research ethics approval from the Curtin University Human Research Ethics Committee (EC00262), Approval Number #2021-0512

Signature:

Date:05/06/2024

ABSTRACT

The offshore oil and gas industry poses significant hazards, marked with stressors that are unique to each geographical location. For example, offshore facilities in the North Sea must contend with extremely cold temperatures along with high winds and waves. Similarly, the oil field of Newfoundland and Labrador in Atlantic Canada face the same harsh climate conditions. In contrast, workers on offshore facilities in Southeast Asia, the Gulf of Mexico, Africa and the Persian Gulf must endure high temperatures, humidity and other adverse climate conditions. All offshore oil and gas facilities share similar working conditions which may present a risk to health such as physically demanding work, absences from home and family, the possibility of serious accidents, geographic isolation and long hours. A scoping review revealed that while many areas offshore have been studied, prior research has not investigated the Australian offshore oil and gas industry work environment, with its unique work context and stressors.

This study aimed to identify these psychosocial hazards and their effect on the mental health of offshore workers. Twenty-nine participants, five of whom were part of a pilot study, were interviewed via online video link after questions were developed from the results of a focus group with eight members. Data was analysed through NVivo software and the results showed that stressors from organisational practices were negatively impacting mental health. These included casualisation, poor company-provided facilities, work-life interference, dishonest work practices such as hiring, firing and rehiring, a culture of blame and lack of accountability, bullying, gendered harassment, micromanaging, a fear of making mistakes, production pressures and time constraints.

Conclusions drawn from the research were that casual work status and poor company-provided facilities cause stress to offshore oil and gas workers. Mental health promotion is becoming more prevalent in the workplace, however it was concluded that return-to-work processes do not take mental health into account upon returning to work after a physical injury. There are undoubtedly negative economic effects of poor mental health on both employers and employees and based on research participants' interview answers, it was concluded that poor mental health places both workers and the facility at risk. Conclusions were that Mental Health 1st Aid was the most effective and favoured intervention for improving mental health at work for offshore oil and gas workers.

Recommendations are intended to help minimise psychosocial hazards for offshore workers. The Mentally Healthy Audit Tool that includes risk control measures and Audit Guide developed for company use, and the Self-report Checklist for worker use, are designed to identify mental health

hazards and assist in the development of risk control measures in order to minimise or mitigate psychosocial hazards for workers in the offshore oil and gas industry. Research findings can be used to guide organisations in the development and implementation of policies and interventions. The findings and recommendations of this research will benefit offshore oil and gas industry companies, workers, the government legislator for this industry and local and international agencies, as it has enhanced knowledge related to mental health hazards and risk control measures for people working offshore.

ACKNOWLEDGEMENTS

I wish to thank the following for their help and support throughout my PhD journey:

Firstly, I would like to thank my research supervisor Dr Sherrilyn Shaw-Mills for putting me in touch with the right people when I mentioned to her one day that “I’d love to do a PhD”. The following week, I was sat down with Associate Professor Janis Jansz, who became my research supervisor, discussing the research gap on psychosocial stressors for offshore oil and gas workers in Australia. Throughout the ups and downs of the journey, Janis has been an ever-present guide and mentor, reminding me not to sweat the small stuff and to take things one step at a time.

Thank you to research supervisors Associate Professor Ahmed Barifceni and Dr Christopher Lagat for the meetings, which always started with the most important question: ‘How are the kids’? Thanks to Ahmed for the stories from Iraq and from the UK and thank you to research supervisor Distinguished Professor Mark Harris for the help with the scary stuff – economics. Thank you to Mitali Ghosh for the support with formatting. Even though we met at the end of our PhDs, you have given me invaluable help. Thank you to my PhD support group – it is such a valuable service provided by Curtin University. I wish I had found you all earlier, but better late than never.

I am so grateful for the opportunity to have been able to conduct my research, enabled by the Australian Commonwealth Government’s Research Training Program. I am thankful to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for giving their support for this project from the outset, and for their feedback on various outcomes of the research. Thank you to the Maritime Union of Australia (MUA), Western Australia branch for featuring my flyer in their newsletter, providing me with participants for my study. The most important people in this study though are the participants, the men and women who work in the offshore oil and gas industry, who gave up their leisure time (or lunch hours) to provide me with insights into their daily lives, their joys and their struggles, so I could share their experiences to try and improve life for them while they work away from their homes and families.

Finally, thank you to my husband Joel and children James and Ella, who I am pretty sure thought I would still be studying as an old age pensioner. Ten years is a long time as a student, but hopefully now you will see all my hard work pay off.

TABLE OF CONTENTS

Declaration	ii
Abstract	iii
Acknowledgements	v
Table of contents	vi
List of tables	xii
List of figures	xiii
1. INTRODUCTION	1
1.1 Background	1
1.2 Research aim and objectives	4
1.3 What was known about this topic	4
1.4 Gaps in knowledge	5
1.5 New knowledge generated	5
1.6 Research significance	6
1.7 Research limitations	7
1.8 Outline of the research report	8
1.9 Introduction summary	9
2. LITERATURE REVIEW	10
2.1 Introduction to the literature review	10
2.2 Literature review methodology	10
Section 1: Gaps in Knowledge of Mental Health Hazards for Western Australian Offshore Oil and Gas Workers – A systematic review	12
2.3 Abstract	12
2.4 Introduction	12
2.5 Method	14
2.6 Results	17
2.6.1 Introduction	17
2.6.2 Work management	17
2.6.3 Work organisation	21
2.6.4 Environment and chemical exposures	25
2.6.5 Situational factors	28
2.6.6 Interpersonal factors	30
2.6.7 Personal factors	32
2.6.8 Health	36

2.7	Conclusions and recommendations	37
2.7.1	Conclusions	37
2.7.2	Recommendations	39
Section 2: A Theory of New Parameters Defining the Roles of Leadership Style and Personality ..		40
2.8	Abstract.....	40
2.9	Introduction	40
2.10	Research aim.....	42
2.11	Method.....	42
2.12	Results	43
2.12.1	Interpersonal.....	48
2.12.2	Job control.....	50
2.12.3	Shifts and sleep	51
2.12.4	Help seeking.....	51
2.12.5	Productivity	52
2.12.6	Leadership	52
2.13	Transformational leadership model	52
2.14	Authentic leadership model	53
2.15	Visionary leadership model	54
2.16	Situational leadership model	55
2.17	Emotional intelligence model.....	55
2.18	Limitations.....	59
2.19	Conclusions and recommendations	59
3.	RESEARCH METHODOLOGY	61
3.1	Introduction	61
3.2	Qualitative research	61
3.3	Phenomenological approach.....	61
3.3.1	Introduction.....	61
3.3.2	Philosophical foundations	62
3.4	Literature review.....	62
3.5	Focus group	63
3.5.1	Introduction.....	63
3.5.2	Development of focus group questions.....	63
3.5.3	Recruitment and sampling procedures	63
3.5.4	Conducting the focus group	64

3.5.5	Focus group data analysis	65
3.6	Development of interview questions	67
3.7	Pilot study	68
3.7.1	Introduction	68
3.7.2	Recruitment and sampling procedures	69
3.7.3	Pilot study results	69
3.7.4	Changes made to the interview questions	70
3.8	Interviews	72
3.8.1	Introduction	72
3.8.2	Recruitment and sampling procedures	73
3.8.3	Interview technique	73
3.8.4	Analysis of interview data.....	73
3.9	Reliability and validity	73
3.9.1	Content validity.....	74
3.9.2	Face validity	75
3.9.3	Internal validity	75
3.9.4	Transferability	75
3.9.5	Credibility and trustworthiness	75
3.10	Ethical considerations.....	76
3.11	Methodology limitations.....	77
3.12	Chapter summary.....	77
4.	FOCUS GROUP RESULTS AND DISCUSSION	78
4.1	Introduction	78
4.2	Demographic information.....	78
4.3	Results of focus group data analysis.....	79
4.3.1	Management and organisational practices	79
4.3.2	Psychosocial obstacles in return-to-work.....	81
4.3.3	Types and causes of mental health stressors	84
4.3.4	Impact of poor mental health on health and safety	85
4.3.5	Economic effects of poor mental health.....	86
4.3.6	Economic effects of good mental health.....	87
4.3.7	Promotion of positive mental health practices	88
4.3.8	Opportunities for improvement.....	92
4.3.9	Further discussion	94

4.4	Interview questions for the pilot study	97
4.5	Answers related to research objectives.....	98
4.6	Chapter summary.....	113
5.	INTERVIEW RESULTS AND DISCUSSION	114
5.1	Introduction	114
5.2	Demographic information.....	114
5.3	Interview question answers	115
5.3.1	What are your rostered hours of work and for how many days/ weeks at a time are you at a rostered to work offshore?.....	115
5.3.2	How do you feel about your roster?.....	116
5.3.3	Have you experienced any management or work organisation factors that have caused you stress? If yes, please explain how this affected your mental health.....	119
5.3.4	Have you had any time off work due to stress?	123
5.3.5	Are there any environmental factors that have affected your mental health when working offshore? If yes, please explain.....	125
5.3.6	What do you perceive to be the main work-related mental health hazards?.....	137
5.3.7	Have you experienced any psychosocial stressors?	166
5.3.8	If you have experienced returning to work after an illness or injury, how were your mental health needs considered in your return-to-work plan?	170
5.3.9	How does the workplace culture affect whether someone will seek help for stress or poor mental health?	172
5.3.10	In what way have you found that the personality of managers affects employee mental health?	176
5.3.11	In what way have you found that the personality of co-workers affects employee mental health?	179
5.3.12	Does stigma seem to affect poor mental health help-seeking and reporting?.....	181
5.3.13	Have you ever had a psychological illness or suffered from poor mental health? If 'Yes': Has having a psychological illness or poor mental health had an effect on you financially?.....	186
5.3.14	Have there been any economic effects on your employer or its employees from a worker being stressed or from having poor mental health? If yes, describe the effects.....	188
5.3.15	Employer provided mental health support	189
5.3.16	In your experience, what have you found most beneficial for improving employee mental health?	198
5.3.17	Has the COVID-19 pandemic had any effect on your mental health? If so why?.....	202
5.3.18	Exit statement.....	211
5.4	Main themes of the study.....	219

5.5	Revisions to the model	224
5.6	Revised model	226
5.6.1	Environmental	227
5.6.2	Chemical exposure	227
5.6.3	Biological	227
5.6.4	Work organisation	228
5.6.5	Work management	228
5.6.6	Situational factors.....	229
5.6.7	Interpersonal.....	229
5.6.8	Personal	229
5.6.9	Health	230
6.	PSYCHOSOCIAL AUDIT TOOL	232
6.1	Introduction	232
6.2	Scope	232
6.3	Development of the Offshore Psychosocial Audit Tool.....	232
6.4	Who should use the Audit Tool.....	234
6.5	Audit process	234
6.6	Summary and benefits	237
6.7	Identifying hazards	237
6.8	Implementing risk control measures.....	238
6.9	Regularly monitoring risk and reviewing controls	238
6.10	Audit Pilot Study Results	239
7.	CONCLUSIONS AND RECOMMENDATIONS.....	241
7.1	Introduction	241
7.2	Objective 1 Conclusions	241
7.3	Objective 2 Conclusions	242
7.3.1	Conclusions related to systems of work.....	242
7.3.2	Conclusions on mental health education provided by the employer.....	243
7.3.3	Conclusions on mental health support provided by the employer	243
7.3.4	Conclusions about other strategies	243
7.4	Objective 3 Conclusions	244
7.5	Objective 4 Conclusions	244
7.6	Objective 5 Conclusions	245
7.7	Objective 6 Conclusions	245

7.8	Study Aim Conclusions	245
7.9	Recommendations	246
7.10	Research Summary	247
8.	REFERENCES	250
9.	APPENDIX	298
	Appendix 1. NOPSEMA letter of research support	298
	Appendix 2. Ethics approval letter.....	300
	Appendix 3. Email invitation to participate in focus group discussion	301
	Appendix 4. Information letter for focus group participants	302
	Appendix 5. Consent form	305
	Appendix 6. Focus group questions.....	307
	Appendix 7. Email invitation to participate in interview	308
	Appendix 8. Information letter for interview participants	309
	Appendix 9. Pilot study interview questions	312
	Appendix 10. Main study interview questions.....	314
	Appendix 11. Permission statements	317
	Appendix 12. Article published in <i>World Safety Journal</i>	320
	Appendix 13. Article published in <i>Social Science and Humanities Open</i>	334
	Appendix 14. Article published in <i>Universal Journal of Operations and Management</i>	344
	Appendix 15. Article published in <i>Safety</i>	359
	Appendix 16: Article under second round review in <i>Safety Science</i>	376
	Appendix 17. Article published in <i>World Safety Journal</i>	411
	Appendix 18. Author contribution statement.....	431
	Appendix 19. Article published in Maritime Union of Australia’s <i>MUA Offshore 12 August 2022</i>	432
	Appendix 20. Self-report measures for employees	435
	Appendix 21. Mentally Healthy Audit Guide for the Offshore Oil and Gas Sector.....	438
	Appendix 22. Mentally Healthy Offshore Workplace Audit Tool	450
	Appendix 23. Presentation to the Occupational Health Society of Australia.	488

LIST OF TABLES

1:1: Oil and gas employment in Australia by work type and sex 2022	8
2.1: Personality traits and their association with work stressors.....	45
2:2: Leadership style-personality trait matrix for managing employee personalities.....	58
4.1: Answers related to research objectives	98
5.1: Length of experience frequencies	115
5.2: Age group frequencies	115
5.3: Roster types and frequencies	116
5.4: Environmental stressors for offshore oil and gas workers.....	126
5.5: Employment factors as perceived mental health hazards for offshore oil and gas workers.....	137
5.6: Management and employee factors as perceived mental health hazards for offshore oil and gas workers	141
5.7: Work environment factors as perceived mental health hazards for offshore oil and gas workers	148
5.8: Company-related factors as perceived mental health hazards for offshore oil and gas workers	153
5.9: Work demands factors as perceived mental health hazards for offshore oil and gas workers .	158
5.10: Home life factors as perceived mental health hazards for offshore oil and gas workers.....	161
6.1: Offshore oil and gas industry psychosocial audit process	234
7.1: Self-report measures for offshore psychosocial audit tool	433

LIST OF FIGURES

2.1: Flow chart depicting the article search and selection procedure for all articles	11
2.2: Flow chart depicting the article search and selection procedure	16
2.3: Possible mental health hazards for the offshore oil and gas industry workers.....	38
2.4: Flow chart depicting the article search and selection procedure	43
2.5: Big 5 personality traits and their relationship with work.....	47
4.1: Word Cloud Frequency for management and organisational practices	81
4.2: Word Cloud Frequency for obstacles in return-to-work.....	83
4.3: Word Cloud Frequency for Types and Causes of Mental Health Stressors	85
4.4: Word Cloud Frequency for Impact of poor mental health on health and safety.....	86
4.5: Word Cloud Frequency for Economic effects of poor mental health.....	87
4.6: Word Cloud Frequency for economic effects of good mental health.....	88
4.7: Word Cloud Frequency for promotion of positive mental health practices.....	92
4.8: Word Cloud Frequency for opportunities for improvement.....	94
4.9: Word Cloud Frequency for further discussion.....	97
5.1: Identified mental health hazards for offshore oil and gas industry workers.....	226
6.1: Identifying and managing workplace psychosocial hazards.....	233

IDENTIFYING WESTERN AUSTRALIAN OFFSHORE OIL AND GAS WORKERS MENTAL HEALTH HAZARDS AND RISK CONTROL MEASURES

1. INTRODUCTION

1.1 Background

While there are a number of studies into the offshore working environment that have examined some aspects that affect offshore workers' mental health, this is the first comprehensive study to investigate all psychosocial stressors in the Western Australian offshore oil and gas industry. With the current uncertainty surrounding offshore work arrangements and higher levels of anxiety in the general population due to COVID-19 (National Offshore Petroleum Safety and Environmental Management Authority) (NOPSEMA, 2020b), this research is both timely and warranted. This research aimed to provide insights where gaps in knowledge existed about the factors that affect mental health of offshore Australian oil and gas workers. The research considered multiple domains of psychosocial stressors, such as work organisation, management, personal and interpersonal factors, situational factors, health, environment and chemical and biological influences. As part of biological stressors, COVID-19 and the resulting lockdowns, quarantine measures and border closures this research has identified that risk control measures implemented for this biological hazard have had drastic consequences on offshore oil and gas employees and their families, as well as costs to the Australian economy and to employers as a result of mental health concerns.

Industry responses to the COVID-19 pandemic have resulted in extended rosters and work cycles, and in order to satisfy lockdown or quarantine requirements, employees have spent lengthened periods offshore. NOPSEMA (2020b) issued a notice regarding the psychosocial risks of compacted rosters on the mental wellbeing of offshore workers during the height of the COVID-19 outbreak. The changes to rosters were proposed with inadequate consultation with offshore employees, which is vital when considering the risks to mental wellbeing and when attempting to manage fatigue (Commission for Occupational Safety and Health (COSH, 2019).

While James et al. (2018) state that the mining industry already held significant stressors in the form of job insecurity, the pandemic has further exacerbated fears of job loss. This research benefits both employees and organisations because it identifies the inherent factors that are hazardous to the mental

health of offshore oil and gas workers. An industry that contributes such a vast amount to Australia's economy (National Energy Resources Australia) (NERA, 2018) would benefit from an analysis of the effects of psychological risks and the consequences of these hazards. A mentally healthy workplace that mitigates harm to its employees and the workforce is more able to maximise the existing benefits of the workplace, such as interpersonal contact, routine, physical activity, personal identity and income. Benefits of addressing the stigma of poor mental health result in lowered costs of psychological injury claims for organisations and a healthier Western Australian economy through enhanced performance and productivity (Department of Mines, Industry Resources and Safety (DMIRS, 2020a); Wright & Cropanzano, 2000).

Because commuting daily is not possible, offshore work in Western Australia is Fly-in, Fly-out (FIFO), where employees rotate between remote work sites offshore and their permanent residence (COSH, 2019). Employees must travel to site by helicopter, a known cause of stress on employees (Bjerkan, 2010; Chen et al., 2009) and higher levels of stress are found where workers must utilise several methods of transport (COSH, 2019). According to Downie and Gosling (2020), 132 lives have been lost due to helicopter transport to offshore facilities on the United Kingdom. Continental Shelf (UKCS) alone, with statistics estimating that the risk of mortality during helicopter travel is 10 times higher than for commercial air travel. Despite recommendations from official investigations, a public inquiry has never been conducted into the safety of helicopter transport to offshore facilities.

Workplace bullying has been found to be a significant issue in what Nielsen et al. (2013a) term "safety critical organisations" (p. 367), as bullying in the workplace is more likely to be a cause of poor mental health in offshore oil and gas employees than specific occupational hazards such as perceived risks, which in turn are heightened by exposure to bullying behaviours. Bullying can also impede interpersonal communication, further affecting levels of alertness, coordination and job performance.

Young males comprise the majority of FIFO positions (Bowers et al., 2018; Gardner et al., 2018; Parker et al., 2018), and are typically at higher risk of psychological illness (Harris, 2016). Their low levels of help-seeking (Bowers et al., 2018) makes research into the well-being of offshore workers particularly urgent, especially considering their higher anxiety levels (Parkes, 1992) and that onshore mine workers are a group considered to be "at risk" (Parker et al., 2018). Offshore work environments are not only as stressful as their onshore counterparts, but also contain further stressors such as long-term absence from home and family, (Neis et al., 2020), isolation, lengthy shifts, long work cycles and close working and living conditions, creating further demands on employers and employees (Parkes, 1992) and lowering levels of mental wellbeing (Langdon et al., 2016).

Other psychosocial threats to mental wellbeing occur when bullying and violence are present in the workplace (COSHH, 2019). High job demand and low job control (Bergh et al., 2016) as well as low levels of supervisor support (Wyatt et al., 2017) are associated with poor mental health. According to COSHH (2019), work demands in the FIFO industry that warrant further investigation include length of rosters, protracted hours of work, rotation of shifts and a substantial amount of days worked consecutively. Workers on revolving or swing shifts were found by Berthelsen et al. (2015) to have lower levels of job control compared to permanent shift workers, whether they were on day or night shifts, resulting in a higher likelihood of anxiety and depression. Compared to workers in onshore working environments, offshore employees have shown increased levels of stress and additional health issues (Cooper & Sutherland 1987; Parkes 1998). Rotation workers are more likely to suffer from sleep issues, occupational stress, poor mental health (Asare et al., 2021) and an accumulation of fatigue (Langdon et al., 2016). Seeking help for poor mental health often results in stigma on remote FIFO sites (Gardner et al., 2018; Education and Health Standing Committee, 2014). Social isolation is an important factor of FIFO employees' work (Riethmeister et al., 2016).

Eggert (2010) revealed that workers with psychological compensation claims commonly have high levels of depression and frustration, yet their resilience levels and coping skills are typically lower than average (Eggert, 2010; Shaw-Mills, 2015). Higher levels of interpersonal workplace conflict are typical where there has been a psychological workplace injury, and workers are likely to have less contact with their workplace after the event. It is not surprising to find that they report lower levels of job satisfaction (Wyatt et al., 2017).

A code of practice for the mental wellbeing of Fly-in, Fly-out (FIFO) onshore workers was adopted by DMIRS (2020a) in response to emerging mental health concerns (Brook et al., 2020), resulting in the addition of an accompanying audit tool (COSHH, 2019; DMIRS, 2020a). To date, however, an audit tool for assessing mentally healthy workplaces in the offshore oil and gas industry remains elusive. Thus, assessing how effectively organisations are managing barriers to and adapting towards a healthier work environment remains difficult.

One of the most robust natural gas industries in the world has been established in Australia, where the capacity for processing for liquefied natural gas (LNG) has tripled since 2012. The contributions from the oil and gas sector towards Australia's economy was estimated to be at \$28 billion in 2018 (NERA, 2018) and are not expected to decrease in the near future, despite energy transition

predictions (Wood Mackenzie, 2020). In fact, the highly skilled and highly qualified employees have more than doubled in numbers since 2016 (NERA, 2018).

1.2 Research aim and objectives

The aim of this research was to identify offshore oil and gas workers' mental health hazards and develop risk control measures. The research objectives were as follows:

- Communicate with offshore oil and gas employees to identify perceived work-related mental health hazards and causes.
- Assess systems of work, employer provided mental health education and support, and other strategies used in the offshore oil and gas industry to support employee mental health.
- Observe how offshore oil and gas employees' mental health needs are considered in return-to-work programs following a work-related injury or illness.
- Identify the negative economic effects for employers and employees due to psychosocial illnesses.
- Identify health and safety hazards in regard to poor mental health and its impacts on offshore installations.
- Develop a Mentally Healthy Workplaces Audit for use within the offshore oil and gas industry. This will provide companies with an opportunity to implement and assess mentally healthy work systems, workplaces, supportive management, mental health education, stigma free reporting and control emerging mental health risks, thereby reducing the risk of any associated negative economic effects.

1.3 What was known about this topic

An extensive literature review revealed that research in offshore working environments had been carried out on facilities in the North Sea (Fleming et al., 1996; Høivik et al., 2009; Nielsen, 2013; Nielsen et al., 2013a; Nielsen et al., 2013b; Parkes, 2010, 2012, 2017; Rundmo, 1992a, 1992b, 1994, 1995; Sneddon et al., 2013), Chinese (Chen et al., 2008, 2009) and Norwegian (Berthelsen et al., 2015; Høivik et al., 2009; Hope et al., 2010; Ljoså et al., 2011; Rundmo, 1994) offshore facilities. Studies on Australian FIFO (Fly-in, Fly-out) workers were focused on the onshore mining cohort (Parker et al., 2018). Therefore, what was known has not been specific to Western Australian offshore oil and gas workers, but to other locations with different climates, ocean conditions and environmental factors.

1.4 Gaps in knowledge

Existing research into offshore working environments had generally been conducted in the North Sea oil and gas fields of the United Kingdom and Norway (Niven & McLeod, 2009) (for specific publications, see Høivik et al. (2009), Nielsen (2013), Parkes (2010, 2012, 2017) and Sneddon et al. (2013), or on the offshore wind farms of Germany (Mette et al., 2017, 2018a, 2018b, 2019; Velasco Garrido et al., 2018). Whilst these make significant contributions to the field of offshore work research, they were not specific to the geographical and climatic uniqueness of the Western Australian offshore environment. For example, the northwest coast of Western Australia is vulnerable to extreme weather events, experiencing an average of five tropical cyclones per season, the highest frequency in the southern hemisphere (Bureau of Meteorology, 2020). Cyclones in the northwest of Australia impede travel both to and from facilities and negatively impact methods of communication. This can create unpredictability and uncertainty for offshore workers (DMIRS, 2016), especially as the disruption to being able to communicate with family and friends at home raises stress and anxiety levels (Henry et al., 2013; Parker et al., 2018). Hot and humid working environments not only affect workers' ability to keep physically healthy (DMIRS, 2020b), but also impact sleep quality and duration (Landon et al., 2019). Some knowledge of offshore work has been generated through research into stressors, albeit in very specific geographical contexts and not to the same extent that this study has considered all known stressors and those identified during interviews. For example, helicopter travel to facilities off the coast of Australia may take hours, whereas journeys to North Sea facilities generally take between 30-50 minutes (Parkes, 2010). Travel times from interstate and across the state can be lengthy (Henry et al., 2013), particularly for individuals who live rurally. Many studies which contribute significant knowledge to the field of offshore working environments are over several decades old. Additionally, a substantial amount of research is carried out by a small number of researchers, pointing to a lack of varied and up to date material.

The Education and Health Standing Committee released a discussion paper in 2014, calling for further research into the impacts of FIFO work on mental health. Noting the frequency of suicides at the time and feeling that it was the responsibility of the organisation to address the problems associated with mental health issues, the advice was that companies should focus on how organisations were managing psychological health hazards.

1.5 New knowledge generated

New knowledge was generated by this research as the participants who worked in the Western Australian offshore oil and gas industry were able to describe what they perceived as psychosocial hazards and how these affected them. Although precarious work arrangements and an inferior level

of representation and protection for offshore workers was identified by the Australian Council of Trade Unions (ACTU) in 2018, feedback from participants in this study shows that the prevalence of psychosocial hazards and the severity of consequences for workers is underestimated in published literature. While the Electrical Trades Union of Australia (ETU, 2022) and Construction, Forestry, Mining and Energy Union (CFMEU, 2022) both raised concerns about the Fair Work Amendment, with the ETU stressing that there were issues about speaking out on safety concerns and the CFMEU highlighted the practice of hiring, firing and rehiring to avoid casual conversion for employees, that these issues are present in the offshore oil and gas industry is new knowledge generated by this study. New insights into the effects of casualisation on the offshore workforce were provided by participants, with indepth interviews revealing the extent to which the practice of casualisation affects workers. There were multiple stressors identified in the findings of this research that affected offshore workers' mental health that were not documented in published literature. The effects of these factors have been worsened by the absence of resiliene-building strategies and lack of focus on return-to-work interventions to promote good mental health.

Women offshore workers had a rare opportunity to voice their personal perceptions of the experiences they have while working offshore as well as the experiences at the intersection between work and family life. This is significant because qualitative research involving female participants who work offshore is rare and studies involving the female Australian offshore oil and gas workforce is relatively unexplored from a phenomenological perspective.

This research established that the COVID-19 pandemic had particularly negative impacts for offshore workers due to compacted rosters and quarantine requirements. New knowledge generated from the research interviews is original, significant and a valuable contribution towards understanding the psychosocial stressors of the offshore working environment, providing insights to assist in the facilitation of workplace interventions which aim to prevent poor mental illness caused by psychosocial stressors.

1.6 Research significance

With anxiety at much higher levels in the general population since the start of the COVID-19 pandemic (NOPSEMA, 2020b), offshore oil and gas workers have had to further contend with added job insecurity and altered shifts and swings, resulting in NOPSEMA issuing concerns in 2020 regarding roster changes in response to the pandemic. Changes that heightened concerns include substantial extensions to time spent offshore, with little employee consultation or consideration of any resulting psychological impacts on employees and their families. As COVID-19 appears to be a

factor that will remain an ongoing presence in daily work life, it is crucial that psychosocial risk hazards associated with the disruption to offshore work cycles and rosters be reviewed considering current predictions (NOPSEMA, 2020b).

In Commonwealth legislation, the Petroleum, Submerged Lands, Occupational Safety and Health Regulations, 2007 neglects to consider the mental wellbeing of FIFO workers. A mentally healthy workforce contributes to a healthy Western Australian economy through its significant impact on performance and productiveness (DMIRS, 2020a; Wright & Cropanzano, 2000). Empowering employees is associated with higher levels of productivity (Zacharatos et al., 2005) and lower levels of accidents (National Academies of Sciences, Engineering, and Medicine, 2018). Untreated stress also affects attendance rates (James et al., 2018) and performance levels (Sutherland & Cooper, 1996). Workplace absenteeism can be minimised by risk assessment and prevention measures (Cotton, 2006; Shaw-Mills, 2015), which in turn lowers expenditure on interventions for psychological disorders. Furthermore, policy makers can benefit from improving the quality of life for offshore oil and gas workers, which can be utilised not just in the Western Australian sector, but on offshore facilities internationally.

This study has provided insights into the offshore oil and gas working environment and the economic costs to organisations, governments and society and can assist in guiding organisations to develop methods to assess psychosocial risk and implement resulting policies for prevention.

1.7 Research limitations

Investigating the negative economic effects of psychosocial illnesses on employees and employers was difficult because there is a lack of industry-specific data openly available. As Sneddon et al. (2013) found, access to industry reports of accidents would provide a more balanced account of the frequency of accidents, as opposed to relying exclusively on self-reported incidents as this may be a misrepresentation of the true number of incidents, accidents and near-miss accidents. Likewise, as there is no publicly available information for compensation costs due to poor mental health for the offshore oil and gas industry, information from Safe work Australia's (2023) report was used, which reported more general statistics. The small number of female participants who took part in the study may have affected the findings. Baygi et al. (2022) suggest that wider research with a more balanced participant sex ratio is needed; however, this is difficult when studying phenomena in traditionally male-dominated industries. Table 1.1 displays employee numbers by work type and sex in the Australian oil and gas extraction industry (Australian Bureau of Statistics, 2022). These statistics are

the closest representative figures for the percentages of females and males in the Australian oil and gas sector and include onshore workers.

Table 1.1.

Oil and gas employment in Australia by work type and sex 2022

Employment	Males		Females		Total
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	
Full time	15,000	75.4	4,900	24.6	19,900
Part time	100	10	900	9.0	1,000
Total	15,100	72.25	5,800	27.75	20,900

Table adapted from *Employed persons by industry sub-division of main job (ANZSIC) and sex*, by Australian Bureau of Statistics, 2022. (<https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia-detailed/latest-release>)

The following section gives a brief outline of the research report by chapter.

1.8 Outline of the research report

Chapter 1

The first chapter provides the background to the research, introducing the factors that can affect the mental wellbeing of Western Australian offshore oil and gas workers, why the research needed to be conducted and the research aims and objectives. It also documents what was known about the topic, the new knowledge generated through this study and the significance of the research. The chapter closes with research limitations.

Chapter 2

The chapter begins with an introduction section and provides the methodology of the literature review, followed by the search strategy and eligibility criteria. It includes an extensive review of published literature parts of which have been published as two journal articles. Article 1 shares knowledge of mental health hazards in the offshore working environment and identifies gaps in research specific to Western Australia. Article 2 considers how leadership styles are suited to the five personality types along the Five Factor Model (FFM) of personality.

Chapter 3

Chapter 3 records the research methodology, giving an overview of qualitative research, in particular Interpretative Phenomenological Analysis (IPA). It also provides a description of the design of the study, target population, recruitment and sampling procedures, study participants and the tools used to conduct the research. It states data collection and data analysis methods.

Chapter 4

The focus group results chapter details the target population, participant demographics and the results and discussion. The data collected was analysed using NVivo. Focus group participants answers are compared to previously published literature findings. The focus group results identify psychosocial risk factors with the intention of answering the study's aims and objectives as well as forming the basis for the pilot study interview questions.

Chapter 5

The interview results chapter provides information on participant demographics and the results and discussion relating to the findings of the pilot study and main study. Interview transcripts were analysed using NVivo. Results revealed the most common psychosocial stressors relating the aim and to each of the study's objectives. This is followed by results and findings of the interview exit question and summary of the main themes that emerged from the interviews. The model developed from a review of published literature (Figure 2.3) is compared with the research findings of mental health hazards in the Western Australian offshore oil and gas industry and an updated model is included.

Chapter 6

Chapter 6 presents the conclusions of the study and details recommendations developed from the research findings.

1.9 Introduction summary

This significant study was conducted with the aim of addressing the lack of knowledge on the factors that affect the mental health of the Western Australian offshore oil and gas workers and to identify the psychosocial stressors of this working environment. The following chapter documents the extensive review of literature published about the psychosocial stressors of offshore work environments. It includes a model developed from the review of published literature on possible mental health hazards for offshore oil and gas workers. This model was tested as part of the research study.

2. LITERATURE REVIEW

2.1 Introduction to the literature review

The aim of the literature review was to develop the theoretical groundwork for the development of the research aims and objectives. The reviewed published literature helped in gaining an understanding of the research that has been conducted into the phenomenon, identified gaps in knowledge and acted as a point of reference on which to build a framework for the study and measures developed from the findings. The review centred on psychosocial stressors in the offshore working environment, including management, work organisation, environmental, chemical exposure, biological, personal, health, interpersonal and situational factors.

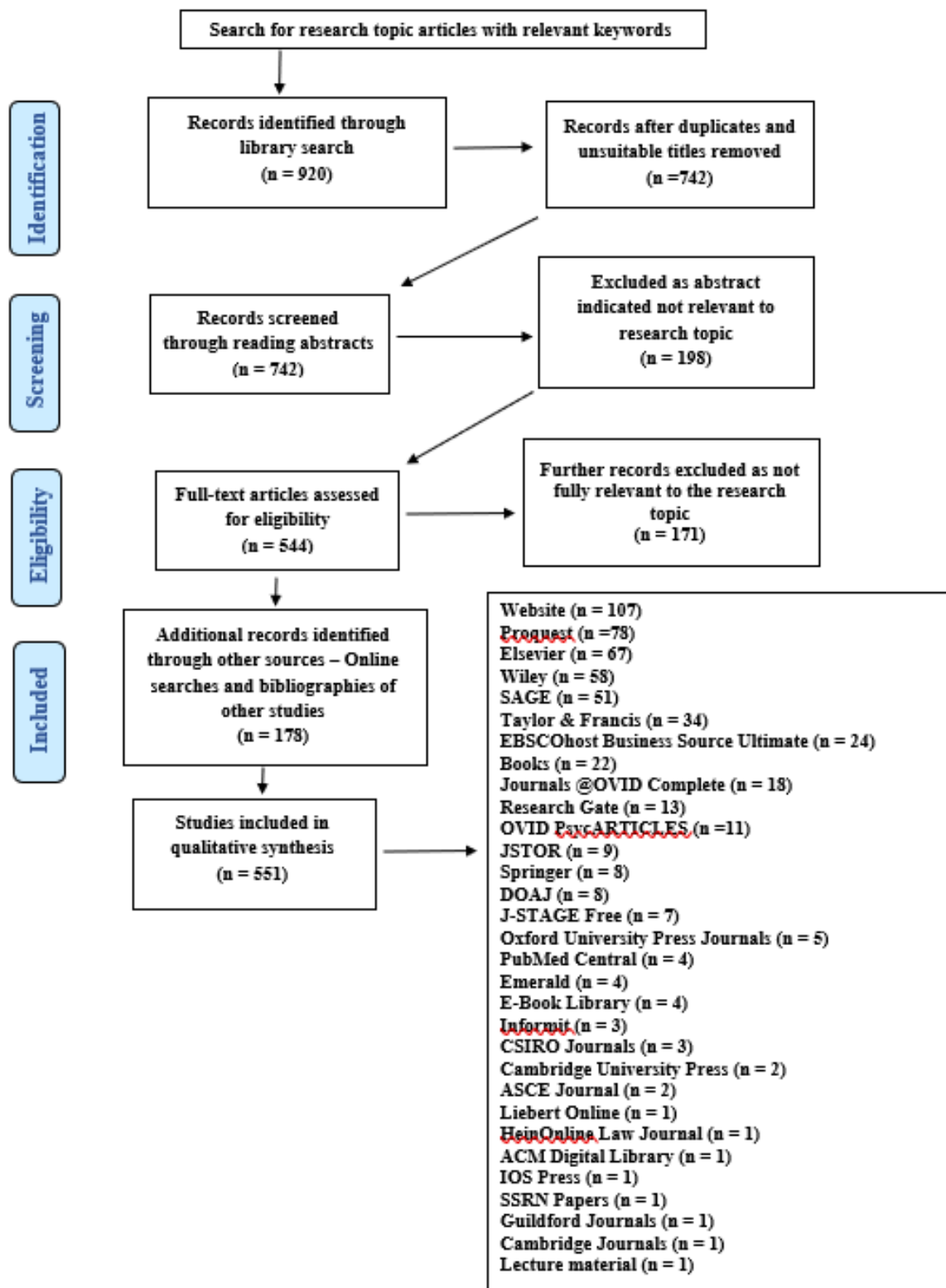
2.2 Literature review methodology

The literature review followed Moher et al.'s (2009) PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) schedule for reporting. The main literature search was conducted in the English language through the Curtin University library catalogue. The literature search provided relevant data bases, displayed in Figure 2.1. Key words used for the search were “stress and offshore workers”, “Fly-in, fly-out workers and mental health risks”, “Job demands-control”, “Personality and job stress”, “work-family interference offshore workers”, “risk perception in offshore work environments”, “mental health and leadership style in offshore working environments”, “co-worker conflict offshore oil and gas”, “isolation and mental health”, “bullying in the workplace and mental health” “offshore job design and health”, ‘job control and job satisfaction’ and “shift work in the offshore industry”, “COVID-19 effects on casual workers” and “trade unions and management”.

For the methodology, the following key words were used in the search: “Qualitative interviews”, “interpretative phenomenological analysis”, “conducting focus groups” and “rigour and validity in qualitative research”. Google Scholar was also utilised and the reference lists of studies were consulted in order to locate further appropriate material. Exclusion criteria resulted in 2 studies not in English and 5 duplicate studies being removed. A total of 916 articles were screened, with 738 remaining after duplicates and unsuitable titles were removed. A total of 271 articles were deemed not relevant after reading of study abstracts. Full text of 540 articles were read, with a further 167 articles deemed not relevant. 172 articles from other sources were used, providing a total of 545 articles. The screening process is summarised in Figure 2.1:

Figure 2.1.

Flow chart depicting the article search and selection procedure for all articles



Section 1: Gaps in Knowledge of Mental Health Hazards for Western Australian Offshore Oil and Gas Workers – A systematic review.

2.3 Abstract

The mental wellbeing of an organisation's workforce is of utmost importance in order to maintain a functional, safe and cost-effective working environment. Fly-in, fly-out (FIFO) workers experience a specific set of challenges to both their work and family lives, and offshore workers have to contend with further adverse work, living and environmental factors. The purpose of this review was to identify offshore oil and gas workers' mental health hazards and their interaction in order to determine gaps in existing research and to guide the scope for future development of risk control measures. An extensive review of the published literature showed that there are multiple factors that affect mental health for the offshore oil and gas industry workforce. In addition, interactions were found between all domains of the model developed based on this review of possible mental health hazards for offshore oil and gas workers, and in some cases one or more factors acted as mediators between others. The lack of literature exploring mental health risk factors for the Western Australian offshore oil and gas industry demonstrates the current gap in knowledge and need for further research into this unique working environment.

2.4 Introduction

Australia has established one of the most robust natural gas industries globally, with the processing capacity for liquified natural gas (LNG) tripling since 2012. In 2018, NERA estimated the oil and gas industry's contribution to the Australian economy to be \$28 billion. Even with the most ambitious energy transitions into sustainable development, the demand for LNG is anticipated to remain consistent and robust well into the 2040s (Wood Mackenzie, 2020). Since 2016, the workforce has more than doubled in Australia's core oil and gas industry (NERA, 2018). In 2019, Western Australia adopted a code of practice in response to concerns around the mental wellbeing of onshore fly-in-fly-out (FIFO) onshore mine workers in the construction and resources sector (Brook et al., 2020). After examining current published literature, there appears to be a considerable shortage of research into Australian offshore oil and gas employees' mental wellbeing. Onshore and offshore mining industry workers differ in age, education, skills and workplace. Offshore oil and gas workers are highly qualified and employed in high-skilled professions, such as geophysics, drilling, production and subsea engineering (NERA, 2018). While physical wellbeing and medical provision have been a priority since the establishment of North Sea oil and gas installations, factors pertaining to the psychological health of offshore workers have been less forthcoming (Gardner, 2003).

Occupation specific stressors in the offshore oil and gas industry are unparalleled in the sense that they occur not only within the high-risk environment of major industry but also in a seafaring environment (Mearns & Flin, 1995; Nielsen et al., 2011). Occupation specific safety risks include blowouts, transport accidents, diving accidents, damage to the installation structure, dropped objects, cuts and falls (Nielsen et al., 2011). Psychological and psychiatric conditions as well as personality disorders can affect vital mental and physical requirements to perform tasks safely. Furthermore, alertness levels and coordination can be affected by medication for psychological conditions. Without access to social and psychiatric support, individuals may present a higher than usual risk to themselves and others (Australian Maritime Safety Authority, 2020).

Research into the psychological wellbeing of offshore workers is crucial, taking into account these hazards and their potential to cause significantly higher levels of anxiety (Mette et al., 2018a; Parkes, 1992). Over a quarter of participants in Miller et al.'s (2019) cross-sectional study of 580 participants were found to be at elevated risk of suicide, and it is not surprising to learn that mine workers are considered an "at risk" group (Parker et al., 2018). In Miller et al.'s (2019) research, over half of employees had experienced workplace bullying, with one third (32.3%) reporting moderate to severe depression. Although both these studies examined onshore mine workers, several elements of the offshore working environment create additional challenges for both workers and organisations (Parkes, 1992). Work in the offshore resources sector exposes personnel to both physical and psychological stressors, particularly considering the environment, geographical isolation, accommodation (Parkes, 2012), extended working hours (James et al., 2018; Virtanen et al., 2011), limited space, ocean conditions (Chen et al., 2009) and continuous noise (Gardner, 2003; Haward et al., 2009; Parkes, 2017). Because of these additional factors, offshore workers are susceptible to sleep disturbances, leading to major health and safety risks including injuries and accidents. However, much of the literature neglects mental health factors, instead choosing to focus on physical health, job demands and work organisation. Moreover, while there is existing literature looking at most individual aspects of the model developed in this review of published literature on possible mental health hazards for offshore oil and gas industry workers, none to date have considered all factors together, or for the offshore oil and gas industry specific to Western Australia. Furthermore, the majority of research published focuses on the Norwegian and British installations of the North Sea (Høivik et al., 2009; Nielsen, 2013a; Nielsen et al., 2013b; Parkes, 2010, 2012, 2017; Rundmo, 1992a, 1992b, 1994, 1995; Sneddon et al., 2013).

In relation to work arrangement in the offshore oil and gas industry, stress and physical and psychological abuse are hazards identified as being harmful to mental health and wellbeing (COSHH,

2019). Bergh et al. (2016) emphasise the negative outcomes when work situations are demanding but provide little autonomy for workers. A lack of support from managers or superiors and from work colleagues (Wyatt et al., 2017) and perceptions of work demands influence workers compensation claims. Negative effects such as frustration and depression have been found to be common amongst those with psychological work claims (Eggert, 2010).

Other factors such as fatigue and regular absence from family and friends contribute towards low levels of psychological wellbeing (Landon et al., 2019). The outbreak of the novel coronavirus (COVID-19) compounded the psychological effects of isolation and concerns around job security. Anxiety in the general population is estimated to be at a higher rate than before the pandemic (NOPSEMA, 2020b). A significant association between moderate to very high levels of mental distress and uncertainty regarding employment was found by James et al. (2018). New work rosters implemented to adhere to COVID-19 isolation requirements have also resulted in concern for negative effects on the mental wellbeing of FIFO workers (NOPSEMA, 2020b), as well as on home and family life (Neis et al., 2020). Workers with positive perceptions about their working environment are not only more likely to return to work but are also more likely to remain at work during injury claims (Shaw-Mills, 2015). As psychological wellbeing is associated with workplace attendance and performance (Wright & Cropanzano, 2000), it is suggested that treatments such as psychosocial interventions and rehabilitation strategies can aid in the return-to-work process.

The aim of this literature review was to provide a theoretical foundation for exploring present gaps in research. Current published literature relevant to aspects of the risk model developed has been reviewed and this paper highlights the interactions between factors in order to guide future research into the mental health risks posed to Western Australian offshore oil and gas workers. The study was limited by three major factors. Original studies which established new knowledge of the offshore oil and gas industry are over several decades old and are limited by location. In this subject area where certain authors have contributed a substantial proportion of research this imbalance genuinely reflects the knowledge depths of these researchers but does underscore the lack of varied or up to date research into this environment. The article commences by introducing the literature review methodology.

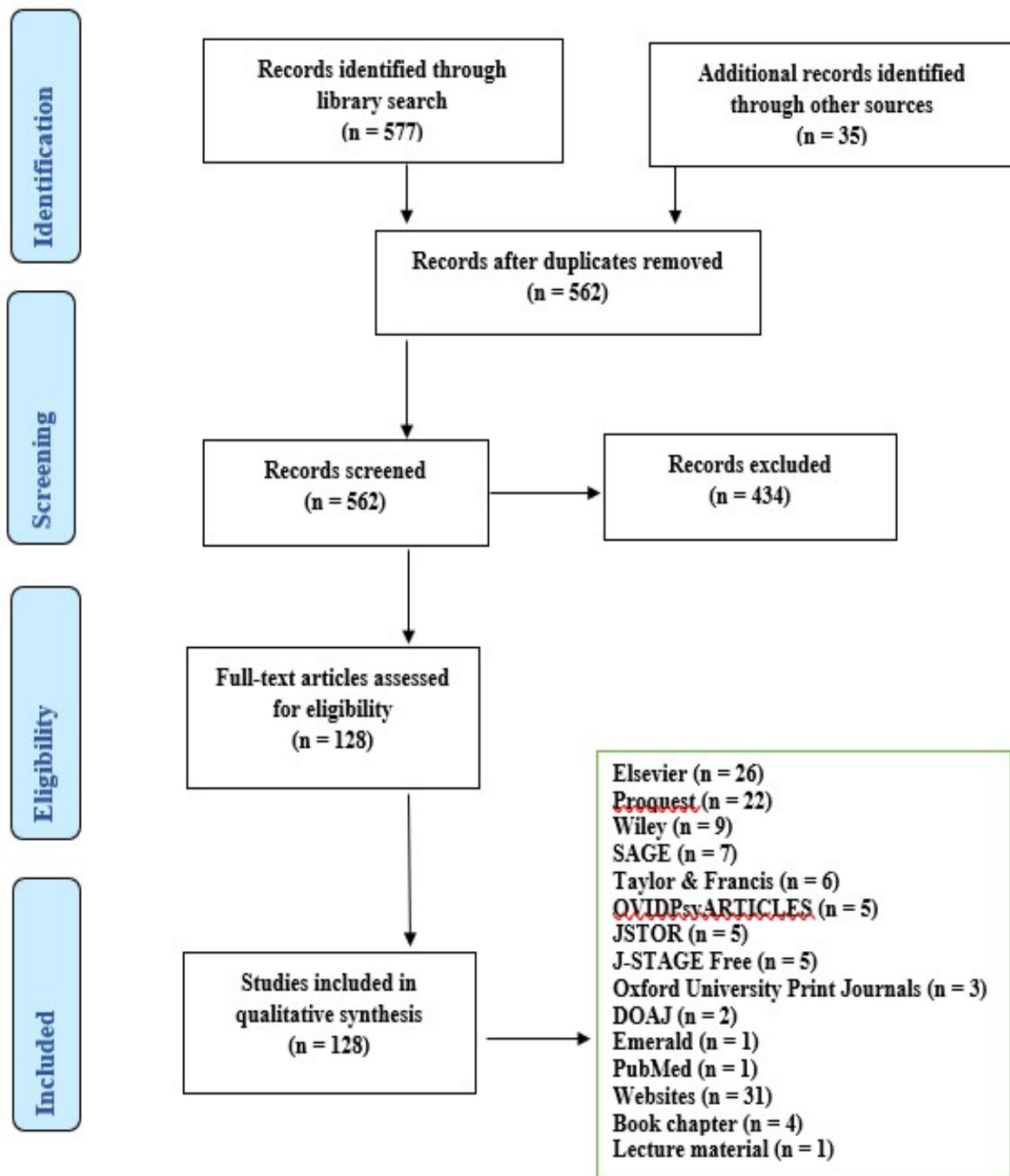
2.5 Method

The review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA, 2009) checklist (Moher et al., 2009). The literature review was conducted using the Curtin University library catalogue. Searches were conducted in the English language. Search terms began with “stress and offshore workers”, and then narrowed to locate particular factors

and generally included “offshore”. Further search terms included “Fly-in, fly-out workers and mental health risks”, “Job demands-control”, “Personality and job stress”, “work-family interference offshore workers”, “risk perception in offshore work environments”, “mental health and leadership style in offshore working environments”, “co-worker conflict offshore oil and gas”, “isolation, mental health”, “bullying in the workplace and mental health” “Offshore job design and health”, “job control and job satisfaction” and “shift work in the offshore industry”. The bibliographies of included articles were assessed to locate further studies of interest for inclusion into the literature review. Articles not in English were excluded. Likewise, duplicate studies across search terms were not included. Total articles returned from all searches were 577. Three hundred and fifty-three articles were deemed not relevant to the study. Sixteen studies not in English and 2 reviews were excluded. There were 50 duplicate studies that were not included in the references and 63 abstracts were read and further excluded. A further 35 references were identified from other sources. After the selection process, a total of 128 references were eligible for inclusion. The method used for the literature search and screen process is summarised with the flow chart (figure 2.2) as follows:

Figure 2.2.

Flow chart depicting the article search and selection procedure.



2.6 Results

2.6.1 Introduction

The analysis of published literature on the possible causes of mental health hazards in the Western Australian offshore oil and gas industry has generated seven main themes that are (1) work management, (2) work organisation, (3) environmental and chemical exposures, (4) situational factors, (5) interpersonal factors (6) personal factors and (7) health. Each of these main themes are discussed.

2.6.2 Work management

Work management encompasses all aspects of the way organisations manage systems of work. A well-led organisation can positively influence worker's psychological well-being, safety climate and exposure to bullying behaviours. Being a victim of psychological, verbal or physical abuse is likely to lead to mental health issues such as depression and anxiety. Often the factors influencing bullying relate to the style of leadership, job demands and job control. Role clarity can be negatively affected by leadership style. Workplace safety culture can either enhance or reduce stigma surrounding mental health conditions as well as affect attitudes towards safety and accident reporting procedures (Bjerkan, 2010; Henry et al., 2013).

The management of work is affected by leadership style. Barlow and Iverson (2005) suggest that health and well-being is especially influenced by occupational stressors related to organisational leadership. Authentic leadership, which promotes a positive moral environment (Nielsen, 2013), has a direct effect on safety climate ($p < 0.001$) (Hystada, 2013) and, perhaps due to the presence of ethically robust and well-balanced managers, also lessens the risk of being exposed to bullying. Supervisors who practice authentic leadership are generally positively engaged in the workplace environment and are invested in their employees and in promoting openness and personal development (Nielsen, 2013). O' Dea and Flin (2001) also examined supervisor experience and style of leadership in relationship to safety attitudes and behaviour and found that although level of experience is not a major factor in determining style of leadership or attitudes towards safety, supervisors and managers with less experience were found to hold perceptions about the safety climate that appeared to overestimate their own capability to influence or inspire their workforce. This was also the case where leadership style was considered more direct, whereby tyrannical leadership is a significant factor in psychological distress, as found by Nielsen et al. (2013b) in their longitudinal study of 741 Norwegian offshore oil workers. On the other hand, laissez-faire leadership

was found to be one of the strongest occupational predictors of subsequent distress. Higher levels of safety concerns have been found where there is laissez-faire leadership, suggesting matters related to safety may mediate the relationship between this type of leadership and psychological distress. More counterproductive and detrimental than non-leadership styles, laissez-faire leadership was found by Nielsen et al. (2013b) to increase the risk of subsequent distress (OR = 1.69; 95 % CI: 1.12–2.54) ($p < 0.01$). Cho's (2017) study of 2844 youths found that bullying perpetration had a reciprocal effect on bullying victimisation. Participants who had associated with bullies were more likely to be bullied ($\beta = 0.48$, OR = 1.61, $p < 0.05$). Furthermore, perpetrators of collective bullying were at higher risk of being collectively bullied themselves ($\beta = 1.27$, $p < 0.001$).

Workplaces with supervisors who neglected to foster an environment of collaboration were more likely to experience bullying behaviours in the workplace (OR = 3.04; 95% CI = 1.84–5.04), resulting in participants being almost three times as likely to report an increase of suicide risk (OR = 2.70; 95% CI = 1.53–4.76) and 2.5 more likely to report depression (OR = 2.38; 95% CI = 1.40–4.05) (Miller et al., 2019). Furthermore, a leadership style that avoids the responsibilities of leadership can often be misinterpreted as ostracising to workers, which has a negative psychological effect on individuals. It can also lead to an increase in psychological stress in the form of role conflict ($p < 0.001$) (Baillien & De Witte, 2009), lack of role clarity (role stress) (Skogstad et al., 2007) and was significantly associated with high co-worker conflict levels ($pr = 0.23$; $p = 0.01$) in Skogstad et al.'s (2007) study of 2,273 Norwegian employees.

Closely related, role clarity and, conversely, role ambiguity are dependent upon styles of leadership. Moreover, role ambiguity is significantly associated with bullying ($p < 0.05$) (Skogstad et al., 2007). This author points out the association between laissez-faire or nonchalant leadership with a lack of role clarity, which can result in role stress and significant psychological anguish, a finding supported by Berthelsen et al. (2015) and Parker et al. (2018). Further support for the negative effects of laissez-faire leadership style emerged from Nielsen's (2013) study, showing intercorrelations between permissive leadership and bullying behaviours. This is particularly concerning, considering FIFO workers are not only at greater risk of witnessing abuse, but are also more likely to be a victim of abuse (Parker et al., 2018), with the main source of the bullying being supervisors. In Nielsen et al.'s (2013b) longitudinal study, workplace bullying was found to be one of the strongest occupational predictors of subsequent distress (OR = 1.49; 95 % CI: 1.07–2.10, $p < 0.01$). Being a victim of bullying (Men OR = 8.00; 95 % CI: 6.06 – 10.56; Women OR = 8.44; 95 % CI: 6.84 – 10.41; $p < 0.001$) or even witnessing the bullying of others (Men OR = 3.15; 95 % CI: 2.65 – 3.76; Women OR

= 4.02; 95 % CI: 3.43 – 4.71; $p < 0.001$), was found to significantly increase the likelihood of depression (Niedhammer et al., 2006).

Baillien and De Witte (2009) identified a significant association between bullying and organisational change in a study of 1260 participants ($\beta = .11, p < .01$). However, their use of role conflict ($\beta = 0.21, p < 0.001$) and job insecurity ($\beta = 0.10, p < 0.01$) as mediators gives some clue towards the weight of the influence of both these factors. These mediators are closely associated with bullying, but not organisational change. This, the authors suggest, points to the inference that workplace bullying occurs only when organisational change is negative, such as high levels of role conflict and job uncertainty and not for effects of organisational change that are positive or irrelevant to the individual.

Exposure to bullying also affects risk perception (Nielsen et al., 2013a). Interpersonal communication and cooperation can be impeded by bullying factors, creating unsafe environments where alertness, cooperation and communication are reduced, thereby affecting job performance (Nielsen et al., 2013a). Both physical and mental health are compromised by these behaviours, resulting in sleep disturbances and disorders, neck pain and headaches. Frequently experiencing workplace bullying was found by Steele et al. (2020) to cause a four-fold increase in reports of psychological distress. Niedhammer et al.'s (2006) cross-sectional survey study of 7,654 French workers found a similar pattern in regard to frequency of bullying.

Baillien et al.'s (2011) urges to consider workplace bullying together with job demand factors emerged through Baillien et al.'s (2009) qualitative case study, with the resulting model structured around 87 case analyses of bullying incidents where job demands and control were considered to be contributing factors to job strain. Job strain is described by Ulleberg and Rundmo (1997) as the adverse effects caused by stress resulting in negative psychological, physical and behavioural responses. At the same time, job demands and control are associated with bullying behaviours. This is the case for both perpetrators and victims of bullying, where high job demands and low job autonomy foster feelings of helplessness and often lead to interpersonal conflict. Likewise, the effect of interpersonal conflict on bullying is also significant ($p < 0.001$) (Baillien & Witte, 2009). Because management style and bullying are both closely associated with risk perception (Nielsen, 2013), it is important to consider the literature on both risk management and perceptions of safety and risk.

Closely related to risk perception and psychological distress is risk management (Nielsen et al., 2013a; Sutherland & Cooper, 1986). The safety culture and safety climate of an organisation are often confused and used interchangeably (Bjerkan, 2010; Høivik et al., 2009). Safety culture, a more

complex and persistent characteristic of an organisation, reflects fundamental norms, values and attitudes towards safety and manifests through risk management processes and practices (Mearns & Flin, 1999). Barlow and Iverson (2005) suggest that health and well-being is especially influenced by occupational stressors related to safety and a commitment towards safety is associated with reduced levels of anxiety and stress (Bjerkan, 2010), greater job satisfaction (Ulleberg & Rundmo, 1997) and low injury risk (Bjerkan, 2010; Khazode et al., 2012). It is therefore imperative to establish a risk management process that is effective and does not rely solely on challenging individual attitudes but works at all organisational levels to improve safety compliance (Chiri & Jansz, 2016). That is, each individual at every level taking responsibility for safety processes (Fleming et al., 1996) whilst aiming to achieve a 'collective acceptance' of those procedures (Cairns et al., 2008, p. 206).

Stigma is an important factor to address, as it has been found to be a significant cause of psychological and emotional stress (Bowers et al., 2018). In Bowers et al.'s 2018 study of 1124 miners, it was the strongest predictor of psychological distress, with workers affected by this factor being 20 times as likely to experience high levels of mental stress (OR, 23.5; $p < 0.001$). In addition, 41 percent of participants stated concerns around the stigma attached to experiencing psychological distress and 38.5 percent found the lack of available help to be a further source of stress. Stigma surrounding mental health in the work environment was found by Parker et al. (2018) to be linked to lower levels of happiness and contentment, lower levels of trust and decreased self-acceptance and personal development. In fact, perceived stigma was found to have a significant association with suicidal risk by the authors ($p = 0.000$). Likewise, fear of being stigmatised for mental health disorders is a significant predictor of psychological stress (Bowers et al., 2018). The stigma surrounding psychological issues eventually becomes apparent to those who are suffering from poor mental health, leading to the possibility that the perceived negative attitude towards them will be internalised, leaving persistent psychological and neurological changes and withdrawal and avoidance behaviours. Because individuals experience stigma as a stressful and painful experience, internalising others' perceptions of them lowers the likelihood of disclosure to employers as well as family and friends (Casey et al., 2021).

Employers have been found to respond considerably differently to psychological injuries than to physical injuries (Wyatt et al., 2017). Workers with psychological claims assert that they experience lower levels of fair treatment, perceiving their employers to treat those recovering from physical injuries more fairly and offering more support. In a survey of 9377 workers over two years, seventy five percent of physical cases compared to twenty seven percent of psychological cases reported this in Wyatt et al.'s (2017) research. Several authors point out the benefits of addressing the stigma

associated with mental health and its effects on mental wellbeing and help-seeking behaviour. Bowers et al. (2018) and Henry et al. (2013) propose early intervention strategies, with a focus on improving mental health literacy, defined by Kutcher et al., (2016) as having the means to achieve and sustain sound mental wellbeing, while reducing stigma surrounding mental health issues and encouraging help-seeking behaviours. However, early intervention is difficult when help-seeking behaviours are low, placing workers at risk of further psychological distress (Battams et al., 2014). Workplace culture and the attitudes of colleagues can negatively influence help-seeking behaviours, particularly when an environment is male-dominated and where seeking help may appear weak (Henry et al., 2013). Workers satisfied with options for recovery have improved outcomes for mental wellbeing, lowering their current high level of risk for depression, anxiety and burnout (Parker et al., 2018). Claimants with psychological injury cases have been found to generally possess lower levels of resilience and poorer coping skills (Eggert, 2010; Shaw-Mills, 2015) and are less likely to report job satisfaction or feel that their work is appreciated by others (Wyatt et al., 2017).

The reporting of accidents and dangerous incidents on or near installations to NOPSEMA is a strict requirement for the states and territories of Australia (excluding Western Australia, which reports to the relevant State Minister) (NOPSEMA, 2020a). Prevention of accidents relies on correct reporting procedures as well as investigation and regulation. Reporting procedures identify risks and subsequently reveal necessary intervention strategies. However, challenges remain and despite penalties for breaching occupational health and safety laws and an overall reduction in workplace fatalities in high-income countries, deaths remain unreasonably high. A significant failure in surveillance and reporting, argue Woolford et al. (2017), is the focus on individual behaviour in the working environment and the failure to consider organisational factors such as the acceptance of unsafe work behaviours or practices as routine. If responses to workplace accidents and deaths largely ignore the context in which individuals operate, that is, the work environment and culture, then a substantial opportunity to examine important influences on individual attitudes and behaviour is missed. Furthermore, establishing workable policies and effective preventative strategies that are suitable for all levels of an organisation, particularly considering the complexity of workplace fatalities, is a challenging task for legislators, who must ensure that evidence rather than industry profit forms the basis of injury prevention.

2.6.3 *Work organisation*

According to the Department of Mines, Industry Regulation and Safety and Worksafe (2018), work organisation factors such as work cycles, workload, job design and level of job control are the greatest contributors to fatigue and injury. Heavy workloads and inflexible or overregulated work

management systems, together with low decision latitude leave workers at risk of psychological stress (Virtanen et al., 2011). Shift workers, particularly when work hours extend into the night, are vulnerable to fatigue and poor mental health and wellbeing (COSHH, 2019).

It is well established that shift patterns are associated with psychological wellbeing and distress (Berthelsen et al., 2015; Bowers et al., 2018; COSHH, 2019; Henry et al., 2013; Ljoså et al., 2011; Mette et al., 2017; Mette et al., 2018a) and at times can negatively affect family relationships (Ljoså et al., 2011). Longer roster patterns were found to result in lower levels of mental wellbeing (Parker et al., 2018) and higher levels of anxiety (Pavičić Žeželj et al., 2019). Henry et al. (2013) and Mette et al. (2017) revealed that shift workers sometimes have difficulty carrying out tasks to completion, an obvious source of frustration.

Usual shift durations of 12 hours have been described by offshore workers as long and monotonous (Mette et al., 2017) and uneven time rosters (for example 2 weeks on/one week off) and night shifts were linked to lower levels of mental wellbeing and an elevated risk of suicidal intent compared to day shifts (Parker et al., 2018; Torquati et al., 2019). On the other hand, revolving shift workers and swing shift workers have lower levels of job control in comparison to permanent night and permanent day workers (Berthelsen et al., 2015), making them more vulnerable to depression and anxiety (Berthelsen et al., 2015) and less able to cope with challenges (Karasek, 1979). The adjustment to shift change was also found to be a significant stressor by Henry et al. (2013). A link between shift patterns and an aspect of personality was found in Berthelsen et al.'s (2015) cross sectional study, where revolving shift workers exhibited higher levels of neuroticism ($F(1,291) = 7.821, p = 0.006$). Personality is also examined in the context of the offshore oil and gas industry by Parkes (1993), who reported significant associations between neuroticism and sleep quality, where those with higher levels of neuroticism slept for shorter periods, particularly when on night shifts.

Sleep and sleep patterns are interrupted and altered by many factors, particularly because shifts are so varied in offshore work. Specifically, night shift workers are susceptible to sleep disturbances. As a result of sleeping during the day, which generally is a time that the body and brain are alert, shift workers experience poorer quality of sleep (Cohen et al., 2010; Torquati et al., 2019). The circadian readaptation that occurs during shore leave has a significant effect upon family life (Merkus et al., 2017; Parkes, 2017), which can lead to individuals becoming socially isolated and contribute to poor mental health (Torquati et al., 2019). Disrupted sleep caused by shift patterns can stimulate production of melatonin during daylight hours, causing irritability, anxiety, agitation and depression. Conversely, an overproduction of cortisol due to stress from extended working hours also affects brain

functioning, causing poor mental health (van der Starre et al., 2013). For women, extended waking hours due to long shifts led to a 1.66 fold risk of depression (95% CI = 1.06-2.61) in Virtanen et al.'s (2011) prospective analysis of 2960 full-time employees who worked over 55 hours per week and a 1.74 fold risk of anxiety (95% CI = 1.15-2.61). This relationship, however, was not significant for men, perhaps due to their greater job variety and job control and lower levels of work-family conflict.

Although night shifts seem to provide greater job control, Merkus et al. (2017) suggest a period of 2 weeks for recovery, although they found no evidence to support their theory that night shift workers would begin their onshore rest period feeling more mentally and physically tired than day workers. These authors propose that either a deliberate attempt was made to facilitate readaptation of the normal circadian cycle, or that there is an expectation by families that the returning family member would immediately involve themselves with day-to-day responsibilities.

Daytime fatigue is caused by disturbances in nocturnal sleep patterns, and daytime sleep is tenuous and easily disturbed. Tiredness impairs motivation and alertness, affecting safety performance. Continual disturbances to nocturnal sleep result in an accumulation of sleep debt, whereby a worker will lose the equivalent of one night's sleep over a seven-day period (Tilley et al., 1982). Fatigue causes are numerous and include external factors such as poor sleeping conditions due to excessive light or inability to recline (Landon et al., 2019). Mette et al. (2018a) noted that fatigue becomes more prevalent during the final days of the offshore work cycle, while higher levels were associated with heavy workload and longer shift hours. Certain individuals are at higher risk of the negative effects of fatigue, requiring additional recovery time.

Fatigue is also associated with a decrease in motivation, poor communication, diminished attention, poor recall, reduced decision-making abilities, a more negative view of safety, an increased likelihood of making errors (Landon et al., 2019), reduced performance and time off work (Jepsen et al., 2015). Furthermore, diurnal melatonin production has been found to reduce clarity of thought (Virtanen et al., 2011). Further evidence of the detrimental effects of poor sleep quality came from Samaha et al.'s (2007) exploratory study of 111 shift-workers, with findings that inadequate rest was a significant contributor to fatigue. Reciprocally, disturbance in mood and trait anxiety were significantly predictive of chronic fatigue. When at home, fatigue can disrupt family life, which in return negatively affects job satisfaction and therefore rates of staff turnover. Furthermore, a high rate of staff turnover generates difficulties in creating and maintaining trusting relationships at work (Henry et al., 2013).

Job demands include all elements of work, whether psychological, physical, social or organisational, that are cognitively or emotionally taxing. Demands can be in the form of work or role overload, shift times, job certainty and job strain (Parker et al., 2017). Job demands are a significant factor in psychological distress (Nielsen et al., 2013b). Karasek's 1979 job demands-control model remains one of the most important and most studied job strain model to date. Work design has been of interest to researchers since the 1940s, however, it was Karasek (1979) who identified the lack of work demand factors in research into occupational stress, and recognised the importance of job control to counter the negative effects of job demands. Decades later, Karasek and Theorell (1990) established the role of social support as an additional countermeasure to the effects of job demands (Parker, 2017). Time demands were found to have a significant relationship with work stress (Behson, 2002), where an escalation in time demands resulted in higher levels of job stress (Wu, 2016). Parkes (2017) found significant interactions between overtime status and job demand. Interestingly, the author found that time status was associated with supervisor support ($F(1,522) = 6.77, p < .05$).

Maintaining some level of command over work is crucial to cope with challenges (Karasek, 1979). This is particularly important where workers are in jobs with high demand because control appears to serve as a buffer between the two. The author points out the importance of considering the effects of both job demands and job decision latitude together to produce a genuine representation of the causes of job strain. The combination of these two factors have been shown to contribute significantly to depression and anxiety, agitation, fatigue, sleep disturbances, insomnia and difficulty waking. Furthermore, a lack of job mastery and low levels of self-esteem in relation to the working environment has been suggested to affect mental wellbeing through the wearing away of the perception of mastery over one's work situation and through a reduction in feelings of self-worth (Brooker & Eakin, 2001). Karasek (1979) argued that repetition of job tasks eventually becomes unstimulating and unchallenging, despite the fact that it may once have involved a certain level of skill. Repetitive tasks can lead to boredom, apathy and disengagement, resulting in attention lapses and inadequate reactions in emergency situations, particularly at night where the working environment is less stimulating and where circadian readjustment may be occurring (Jepsen, et al., 2015; Sutherland & Cooper, 1996). As monotonous tasks and jobs which require low levels of decision making are linked to dissatisfaction, apathy and depressive symptoms, Karasek (1979) suggests increasing decision latitude, even when workload is high. Considering that higher levels of job satisfaction are found when there are high job demands and high decision latitude, it could be suggested that poor mental health outcomes associated with job characteristics can be reduced by increasing both job variety and decision latitude, while avoiding negative influences on productivity.

2.6.4 *Environment and chemical exposures*

Environmental influences such as extreme weather, humidity and changeable ocean conditions consistently affect the offshore working environment, often creating a perception of high risk and an atmosphere of uncertainty (DMIRS, 2016). Further job stressors that are perceived as being out of an individual's control, such as excessive noise, vibration, poor air quality, confined spaces and exposure to chemical and toxic substances, not only have a disruptive effect on physiological and psychological wellbeing, but also compound the effects of an already highly dangerous and stressful work environment (Parkes, 2010).

Unstable weather conditions increase the risk of seasickness, particularly during transfer to offshore installations, a source of stress due to the realisation of the increased risk of transport accidents. Abrupt changes in weather add an additional demand to offshore employees' personal resources, where the anticipation of bad weather may result in time pressures and become a source of psychological distress (Mette et al., 2017). In this qualitative study, offshore wind workers in Germany ($n = 21$) expressed how changeable weather patterns added further stressors, often resulting in a stressful and tense working environment. Concerns regarding accidents were also higher during bad weather, while there was also a feeling of urgency among employees to finish tasks promptly if abrupt changes in weather were forecast. These time pressures added further stress to workers, particularly when inability to finish work was felt to relate to cost pressures.

While much research has been conducted on North Sea oil and gas installations (Niven & McLeod, 2009), for example Høivik et al., 2009; Nielsen, 2013; Parkes, 2010, 2012, 2017 and Sneddon et al., 2013, there is a distinct lack of research into the environmental conditions faced by workers at offshore facilities in Australian waters. Specifically, the North West coast of Australia is vulnerable to cyclones, averaging around five tropical cyclones each season, the highest incidence in the southern hemisphere (Bureau of Meteorology, 2020). Mette et al. (2017) revealed that on days where work could not be carried out due to adverse weather events, employees had higher levels of dissatisfaction, reporting feelings of confinement. In addition to restricting both work activity and travel to and from the facility, cyclones also impede communication efforts and generate uncertainty and unpredictability in the offshore work environment (DMIRS, 2016). Mental health and wellbeing relies heavily on access to communication with friends and family back onshore, with a rise in anxiety and stress levels when these connections are disrupted or limited (Henry et al., 2013; Parker et al., 2018).

It is challenging to locate appropriate reference studies for offshore work in hot environments and tropical waters. While climate and ocean conditions are mentioned in Chen et al.'s 2008 and 2009 cross sectional survey studies on offshore Chinese oil workers, they are only referred to briefly. Working in hot and humid environments interferes with employee comfort and performance, where a high level of humidity prevents the body from cooling itself by limiting the evaporation of sweat (DMIRS, 2020b). Sleeping in hot environments can affect sleep duration and increase the frequency of wake times, resulting in interrupted sleep (Landon et al., 2019). Heat stress can be exacerbated by a heavy physical workload, restrictive protective clothing and added heat from either the sun or machinery (DMIRS, 2020b). Ding et al. (2016) made clear the association between adverse weather events such as extreme heat and poor mental health and wellbeing in their study of 53,144 individuals, finding that there was a 0.2% increase in the risk of high distress when there was an increase in temperature or vapour pressure by one unit.

One of the major differences between the onshore and offshore work environment is the continual presence of environmental factors that present added risk to workers' health, safety and lives. In Mette et al.'s (2018a) study, participants stated that the constant motion of the vessel was especially distressing. Diaries from North Sea offshore workers in Haward et al.'s (2009) study showed that employees experienced multiple difficulties with moving and carrying tasks. Furthermore, workers who reported motion sickness and fatigue found that effort to counteract motion effects on work tasks increased with greater motion magnitude. Consistent motion also affected sleep, resulting in mental and physical tiredness.

Undesirable working conditions due to permanent noise was rated as being a high stressor for offshore workers. High noise levels can prevent workers from communicating efficiently and disrupt sleep (Gardner, 2003; Haward et al., 2009; Mette et al., 2018a; Sutherland & Cooper, 1986). Additionally, Landon et al. (2019) state that sleep environments that are too noisy result in reduced sleep duration and result in more wakening episodes. The offshore environment is comprised of multiple sensory cues that can continue to evoke reminders of the constant and inherent dangers long after a shift has finished (Hope et al., 2010). Vibrations also impact sleep patterns, resulting in a lighter sleep (Mette et al., 2018a), as may concern around unexpected events and emergencies overnight when darkness may impede operations (Fossum et al., 2013) and relative accident risk is raised (Rodrigues et al., 2001). Focusing on possible negative safety outcomes during hours of darkness may also undermine sleep patterns and further draw attention to changing noises and vibrations (Haward et al., 2009).

Workers in isolated and confined areas are at risk of negative effects to behavioural health, interpersonal relations and team functioning (Landon et al., 2019) and may find it difficult to disengage from the work environment (Mette et al., 2018a). Chen et al. (2008) and Parkes et al. (1998) make reference to poor ventilation as a stressor, but do not elaborate further. The risks associated with chemicals in the LNG process are asphyxiation and freeze burns/frostbite. Low viscosity of LNG means that it can penetrate clothing and other porous materials easily. This can happen with just a short duration of LNG release (Barifcani, 2019). Although LNG vapours are not toxic, vapours can accumulate in confined areas and displace oxygen, leading to loss of consciousness and death (Shell Australia Pty Ltd., 2020). Propane (BOC, 2017) and nitrogen (BOC, 2018) can also cause asphyxiation according to proportional oxygen displacement and at high levels, carbon dioxide may result in asphyxia. Mono ethylene glycol (MEG) can result in central nervous system depression (Petrochem Carless, 2008). Mercury's effects on the central nervous system can cause convulsions, breathing difficulties and loss of consciousness (Thermo Fisher, 2014). Although employees wear PPE, perception of safety can be affected by the presence of hazardous chemicals, acting as psychosocial stressors to workers (Parkes, 2010).

Landon et al. (2019) state that food can be either a source of enjoyment or frustration, dependent on availability, variety and quality. Likewise, Mette et al. (2018a) point out the importance of suitable food for offshore workers' health. Furthermore, choice (through permitting workers to make their own food choices each day) was an important factor when considering crew satisfaction. Additionally, a failure to provide adequate culturally diverse choices has been linked to conflict between workers (Šolcová et al., 2016), yet food can also act as a bonding factor between international workers. Furthermore, meal timing and group cohesion are further important factors when considering food design in offshore environments (Landon et al., 2019). Finally, Cotton (2006) argued that a workforce educated on the benefits of good nutrition and physical exercise not only leads to higher levels of morale, productivity and job satisfaction, but also reduces health-related workplace expenses for employers and organisations.

It is possible that diet-induced inflammation impacts an individual's mental and physical preparedness in relation to team performance, as well as increasing individual levels of stress. Landon et al. (2019) stress that existing mood disorders such as depression can be negatively influenced by inadequate nutrition. As a consequence, worsening mental health may impact an employee's interaction and performance within a work group, ultimately resulting in further detachment from the team. Zinc, for example, is essential for maintaining regular brain functioning and a deficiency has been linked to an increase in anxiety and depressive symptoms. High fat and low fibre diets with high

sugar content have been linked to inflammatory processes, including neuro-inflammation, and behavioural disorders (Kim & de La Serre, 2018). Landon et al. (2019) suggest a diet high in fibre and low in fat in order to generate greater microbial diversity, lower levels of inflammation and a strengthened intestinal barrier.

It is evident that more experienced workers have a sound perception of their physical working environment and safety systems (Rundmo, 1992b), while repetitive performing of tasks may lead to higher levels of employee risk control, resulting in lower levels of perceived risk (Rundmo, 1992a). Several authors argued that past experience mitigated levels of stress. Mette et al. (2017) found that more experienced workers had lower levels of stress, while Keyserling (1983) and Butani (1988) concluded that recently hired employees and those with less than a year's work experience were more at risk of injuries and accidents, a finding also supported by Khanzode et al. (2012). However, negative past experiences of strain cause individuals to perceive situations as more stressful (Ulleberg & Rundmo, 1997), perhaps explained by negative affectivity, whereby individuals hold a negative perception of their health and environment (Khanzode et al., 2012). Furthermore, Bjerkan (2010) reported that length of employment predicted higher levels of ill health, negative perceptions of health and the workplace along with greater number of accidents. However, those in the same job type for over eleven years did hold more positive perceptions of the psychosocial work environment.

2.6.5 *Situational factors*

Situational factors, or external factors, pertaining to the workplace are unavoidable. However, considering that many situational factors in the offshore working environment are negatively associated with mental health, for example isolation, long periods living away from home and family and likelihood of involvement in serious accidents, it is not surprising that psychological distress occurs at a higher rate in this population. Furthermore, job insecurity due to changing energy demands and COVID-19 has increased the urgency of mental health interventions for offshore workers.

Involvement in workplace accidents are a source of psychological distress, as are near-miss accidents (Nielsen et al., 2013b). As Mearns et al. (2001) state, a production-focused organisational culture, where there is inadequate communication relating to safety and formal procedures (Wright, 1986), contributes towards injuries and accidents, a finding supported by Rundmo's (1994) survey study of 915 offshore employees on the Norwegian continental shelf, which also identified employee and management attitudes to safety, perception of risk and satisfaction with safety systems as predictors of accidents. Once workers have been involved in a workplace accident, risk perception is heightened

and thus may affect satisfaction levels with workplace safety systems, ultimately resulting in higher levels of job stress (Rundmo, 1995).

Unsatisfactory offshore living arrangements such as inadequate accommodation and poor food options undermine achieving and maintaining good mental health. Poor accommodation arrangements can negatively affect the amount and quality of sleep, resulting in fatigue (COSHH, 2019). The intersection between work and living environment is more difficult for offshore workers due to inadequate space, resulting in a consistent feeling of being in a work setting and making it difficult to disconnect after a shift has ended (Mette et al., 2017). These authors found that added environmental influences such as confined spaces and shared accommodation prevented psychological detachment from work. Riethmeister et al. (2016) found that workers consider good food and quality sleep as being the most important factors in implementing healthy aging at work programs and participants in their study identified food as being one of the biggest health concerns to offshore workers. Permanent accommodation was found by Parker et al. (2017) to be significantly associated with optimum mental health and wellbeing outcomes.

In Riethmeister et al.'s (2016) study of offshore workers, living away from home was stated as being the leading negative element of offshore work. Workers have expressed regret at not being present at home when issues arise, missing childhood milestones and special events and difficulties in balancing work and family obligations (Mette et al., 2017; Mette et al., 2019). Employees can find that absences from family and home result in difficulties in integrating back into family life (Mette et al., 2019). Re-establishment into the family home is made additionally difficult due to a need for recovery period, circadian rhythm restoration and an expectation to be 'present' in family life (Parkes et al., 2005). Feeling 'out of the loop' was how one participant in Torkington et al.'s (2011) descriptive qualitative study described their experience at times when returning home (p. 137). Moreover, fatigue when arriving home from offshore work has been found to be significant enough to suppress feelings of happiness at returning home (Parker et al., 2018).

There is no doubt that offshore work environments are among the most isolated in the world. This is evident when considering that helicopter evacuation during an emergency can take several hours (Flin et al., 1997). Social isolation due to remoteness of work location was a leading cause of psychological distress in Bowers et al.'s (2018) study on remote mine workers, where 62.2 percent of workers answered that they suffered psychologically due to social isolation. International differences can adversely affect workers whose work environment and demographic is not similar to their country of origin. Not being able to apply religious or spiritual practices affected approximately 11.2% of

respondents in Bowers et al.'s (2018) cross-sectional longitudinal wellbeing and lifestyle study conducted with 1124 miners at 10 mining sites in South and Western Australia. Literature on this aspect of work was difficult to find for this study, suggesting an opportunity for further research.

Sutherland & Cooper (1989) found the uncertainty of the work environment a significant stressor. More concerning, Parker et al. (2018)'s cross-sectional survey study of 3,108 FIFO workers found a significant association between perception of job security and suicidal intent ($\beta = .12; p < .001$). Likewise, Størseth's (2006) model examining job insecurity together with organisational factors and stress responses significantly predicted mental health outcomes, particularly when job dissatisfaction was included. In turn, job uncertainty was significantly associated with bullying ($\beta = .10, p < .01$) (Baillien & De Witte, 2009) and risk-taking behaviours (Størseth, 2006), a finding previously identified by Probst and Brubaker (2001). These authors stated that a decrease in both safety motivation and adherence was predictive of accidents and injuries, potentially due to perceptions of job insecurity and attempts to display employee efficacy. Job satisfaction mediated the relationship between job insecurity and safety behaviours and outcomes. This suggests a possible focal point for employers to reduce the negative behavioural consequences of job insecurity.

Job insecurity has been worsened by the current COVID-19 outbreak, prompting NOPSEMA to issue a warning on suggested roster changes to combat the spread of the virus. The main concerns refer to the effect of proposed extended hours spent offshore, insufficient consultation with employees and inadequate consideration of psychosocial impacts upon workers and their families (NOPSEMA, 2020b). As a prompt recovery from current COVID-19 circumstances now seems unlikely, it is more important than ever that psychosocial risks linked with disrupted work rosters and ongoing job insecurity be reconsidered in view of the present outlook (NOPSEMA, 2020b).

2.6.6 *Interpersonal factors*

Work and family relationships can not only affect people individually, but they can also interact to negatively affect one another. Where there is stress in one domain, there is often stress in another (Rotondo et al., 2003). High levels of both work and family support are critical for offshore workers, particularly where individuals are experiencing poor mental health (Battams et al., 2014).

Social support includes addressing the stigma surrounding mental health and wellbeing, but also encompasses accessible mental health facilities, for example, onsite services (Henry, et al., 2013), support from supervisors (Mette et al., 2019), support from co-workers (Khanzode et al., 2012), adequate communication coverage for telephone services (Henry et al., 2013; Mette et al., 2017;

Tynan et al., 2016) and online mental health support (Henry et al., 2013). Gardner et al. (2018) found that many workers find support in the form of social media groups and online forums geared towards FIFO workers. Low levels of support are independently associated with mental distress (Ljoså et al., 2011; Mette et al., 2018b), whereas high levels of support have been associated with lower levels of mental distress, (Berthelsen et al., 2015), favourable organisational and health outcomes (Dollard et al., 2009) and motivation (Bakker & Demerouti, 2006). Baillien and De Witte (2009) found social support to be negatively associated with bullying ($p < .001$). Furthermore, high levels of social support have been found to moderate the relationship between job strain and health (Ulleberg & Rundmo, 1997). Often, FIFO workers express that their concerns around mental health and wellbeing are dismissed by the non-FIFO community, particularly considering the popular opinion that the high income invalidates any disadvantages associated with this type of work (Gardner et al., 2018).

Not only has social support been found to influence levels of work stress (Behson, 2002; Mette et al., 2018b) and moderate work strain (Ulleberg & Rundmo, 1997) and its relationship with health issues (Eide et al., 1985), but high levels are also associated with lower levels of injury risk (Khanzode et al., 2012). Consistent with this is the finding that the presence of a medic represents a source of support for offshore workers (Mette et al. (2018a). With respect to injury, perceived support levels differ considerably when comparing psychological injuries to physical ones. In the return-to-work process, an employer's management of psychological cases has a significant effect on return to work rates. This applies to both physical (61% return to work rate, where it was felt that the employer had not responded positively) and psychological injuries, but the effect is markedly larger on psychological cases versus (52% return to work rate where it was felt that the employer had not responded positively) (COSH, 2019). As Shaw-Mills (2015) notes, to achieve a successful return to work, all invested parties must be involved in the return-to-work process. That is, the injured employee must have the cooperation of their employer and their physician for effective resolution and return to work outcomes.

Bowers et al. (2018) found that the most prevalent source of stress came from missing special family events while away (86.5% of respondents) and relationship issues with partners (68%). Respondents who had stressful partner relationships were eight times as likely to experience mental distress (Bowers et al., 2018). Offshore workers can be away from home for almost half the year (Parkes et al., 2005), so work and family domains consistently compete with each other (Parkes et al., 2005; Rotondo et al., 2003). Therefore, it is not surprising that conflict between the two can generate high levels of stress (Sutherland & Cooper, 1986), anxiety and depression (Battams et al., 2014). Sutherland and Cooper (1989) found that workers were more concerned about the problems relating

to relationships at work and home than about any other single issue. Satisfaction with work and home is significantly lowered by work-family conflict and work performance levels are negatively affected. DiRenzo et al. (2011) found higher levels of work-family interference for those with a higher job status, where job demands and work hours mediated between job level and work-family interference. Furthermore, there were significant interactions between job autonomy and family-supportive organisational culture. While lower-level roles feature a high level of standardisation, have a tendency to be routine and are less likely to be influenced by greater job autonomy, higher level workers may use autonomy to structure work demands to positively influence the family-work relationship.

The feeling of 'living two lives' was mentioned in Parkes et al.'s (2005) survey of 245 North Sea oil employees, with workers stating that they find partner expectations difficult to meet when at home. Fatigue from the offshore work cycle, demands on attention and reluctance to take part in domestic or social activities add to inter role differences and work-family conflict. For night shift workers in particular, the combination of fatigue and the need for restoration of a diurnal circadian rhythm can result in a disconnection between offshore workers and their partners and family when at home.

Work relationships, particularly when strained, can act as a major source of stress (Sutherland & Cooper, 1986, 1989), anxiety and depression. In their systematic review of nineteen studies, Battams et al. (2014) found that interpersonal conflict, insufficient or absent workplace cooperation and lack of support were risk factors for depression. Serious workplace conflicts can have adverse effects on interpersonal communication, with the possibility of negative safety outcomes due to a breakdown in collaboration, affecting task performance, coordination and vigilance (Nielsen et al., 2013a). Other negative perceptions and experiences of work lead to unfavourable emotions for the individual but can also affect staff morale. Improved workplace wellbeing has been shown to have multiple benefits, and aside from raising levels of staff morale, can positively influence levels of productivity and job satisfaction (Shaw-Mills, 2015). Moreover, high levels of staff morale also help contribute to a higher performing economy (DMIRS, 2020a).

2.6.7 Personal factors

Situational and risk perception are both subjective interpretations, it has been shown that risk perception is in fact indicative of actual risk (Rundmo, 1992b). Other important factors to consider are personality, which can affect an individual's perception of their environment, and whether people are open to seeking help (Gardner, et al., 2018). Low levels of help-seeking have been negatively associated with mental wellbeing (Parker et al., 2018). Coping styles are also suggestive of stress and interpersonal conflict levels (Rotondo et al., 2003).

Sneddon et al. (2013) documented that working in the offshore oil and gas industry presents multiple challenges for employees, particularly where stress is concerned. A burden on cognitive resources resulting from stress means that workers are likely to suffer from a reduction in alertness and concentration. The resulting interference to situational perception arises from the disruption and constriction of an individual's ability to see the complete picture, only allowing a focus on selective elements in a situation, thereby creating the kind of tunnel vision invaluable in an emergency situation, but not particularly helpful in other circumstances (Sneddon et al., 2013). Likewise, the authors state that disregarding peripheral cues to prevent cognitive overload may result in an individual missing potentially critical safety cues.

Risk perception is a predictor of offshore workers' mental and physical health (Eide et al., 1985) and is affected by several factors, particularly social support and commitment to and practice of work safety procedures (Rundmo, 1992a). Its strong link to mental and physical health, (Sutherland & Cooper, 1989; Nielsen et al., 2013a), in particular stress and anxiety (Ulleberg & Rundmo, 1997), is evidenced in the literature. Workers who perceive their workplace as safe also report a higher level of management and co-worker support (Gillen et al., 2002), higher levels of job satisfaction (Ulleberg & Rundmo, 1997) and lower levels of stress and anxiety (Bjerkan, 2010). Self-reported occupational accidents appear to be lower where there are positive perceptions of the work safety environment (Bjerkan, 2010).

Practically the only mode of travel in offshore work, helicopter transport is a major stressor and concerns surrounding its safety has long been associated with psychological distress (Bjerkan, 2010; Chen et al., 2009; Sutherland & Cooper, 1991, 1996). Risk perception has also been found to be affected by other factors besides social support and commitment to safety practices (Sneddon et al., 2019). Landon et al. (2019) found fatigue to be negatively associated with risk perception and Sneddon et al. (2013) found job control, work environment, job satisfaction and attitudes had a positive relationship with safety satisfaction. Hystada et al. (2013) found similar associations, with mental and physical fatigue predicting a negative impression of safety climate. Mette et al. (2017) found high levels of both safety perception and job satisfaction in their qualitative interview study of 21 German offshore wind workers, yet their association with each other is unclear here. A more obvious association emerged in Fleming et al.'s (1996) survey study of 622 workers from the UK Continental Shelf, where analysis showed job satisfaction contributed to worker's perceptions of safety. Other research has found a similar negative relationship between job stress caused by poor safety perception and job dissatisfaction (Kawakami et al., 1992; Nielsen et al., 2011).

Low levels of help-seeking negatively affect mental health (Parker et al., 2018), work performance and productivity, resulting in high staff turnover, absenteeism and psychological compensation claims (Dollard et al., 2009). Whether or not a person is open to seeking help is influenced by many factors, but social support and stigma are still impeding workers from accessing the help they need (Gardner et al., 2018). A recurring criticism of employers is that although they appear to support mental health and wellbeing, they do not show understanding when workers actually need help or support (Gardner et al., 2018). Workplace culture can prevent workers from seeking help, and there is a clear requirement for employers to address any barriers to seeking help for poor mental health (Torquati et al., 2019).

Help-seeking as a form of social support is a useful coping strategy, claim Mette et al. (2018a), and its positive effects are consistent across both longitudinal and cross-sectional studies, as well as meta-analyses (Penley et al., 2002; Stansfeld & Candy, 2006). Seeking partner and family support shows the importance of maintaining regular communication to onshore ties and the significance of access to adequate means of communication, particularly as support from family and friends while offshore is limited (Mette et al., 2018a). Coping strategies are used to reduce stress or strain from perceived sources of stress (Behson, 2002). Avoidant and passive coping styles have been associated with both higher family-work and work-family interactions, where avoidance-type coping results in a higher level of perceived conflict.

Disengaging from the problem as a coping strategy has been shown to be significantly associated with poor mental health and wellbeing and has been linked to suicidal intent ($\beta = 0.32$; $p < 0.001$) (Parker et al., 2018). In a similar vein, problem-focused coping, from the cognitive appraisal model of stress (Lazarus, 1991), resulted in lower family-work interference, supporting the theory that effective coping styles have a significant effect on perceived levels strain and also on family-work conflict (Rotondo et al., 2003), while moderating the relationship between both organisational and personal stress and strain. In their 1991 scale development study of 276 teachers, Bhagat et al. (1991) also found problem-focused coping acted as a moderator between work-family demands, evident in the lower strain levels of individuals who used problem-focused coping strategies rather than emotion-focus approaches to stressors. In contrast, emotion-focused coping shows no moderating effect on organisational or personal stressors (Behson, 2002; Bhagat et al., 1991). In stressful work situations, and without effective coping strategies, absence from the work environment is used as a resource (Ulleberg & Rundmo, 1997), reflected in workplace attendance rates (Wright & Cropanzano,

2000). Absenteeism is also more likely when workers experience work strain (Ulleberg & Rundmo, 1997) and job dissatisfaction (Sutherland & Cooper, 1996).

Personality and its part in the coping process has been studied by researchers due to its possible role in the person-situation interaction. Sutherland and Cooper (1991) studied Type 'A' personality, defined by achievement motivation, irritability, restlessness, hostility and work-involvement (Parkes, 1992) in the context of offshore work and found an increased involvement in accidents along with poor mental health, job dissatisfaction and higher levels of perceived stress at home as well as at work. These findings, suggest the authors, are evidence of the modifying role of personality, particularly the neuroticism aspect of the Big Five model, in the perception of stressors and an individual's reaction to them, thus determining a worker's vulnerability to accidents.

Examining job status, Battams et al. (2014) found a significant association between job level and depression, where high job demands increased worker's likelihood of depression. Di Renzo et al. (2011) found that those in higher skilled jobs experience more work-family conflict due to their significant job demands and longer work hours. However, lower-level workers are also vulnerable to anxiety and depression (Battams et al., 2014; Kleppa et al., 2008).

Job dissatisfaction is a predictor of offshore oil workers' mental and physical health (Eide et al. 1985) and is associated with job stress and experience of strain (Ulleberg & Rundmo, 1997), leading to absenteeism and high staff turnover. However, as Kawakami et al. (1992) point out in their prospective study of 468 blue-collar workers, job dissatisfaction can be moderated by trust in management, which in turn influences the safety attitudes and performance of workers when considered together with perceptions of safety climate. Treating employees respectfully results in higher levels of trust and in turn commitment to an organisation. Further effects of this are seen in the improved performance of workers. Organisations whose focus is on empowering employees see a greater level of productivity (Zacharatos et al., 2005), avoiding the high cost of poorly managed stress in the form of employee deaths, sickness, disability, unsatisfactory performance and reduced productivity (Sutherland & Cooper, 1996). Unaddressed poor mental health affects workplace attendance, productivity and accident rates (James et al., 2018). It is therefore reasonable to assume that making psychological wellbeing a priority helps contribute to a healthier WA economy because it has a positive impact on performance and productivity (DMIRS, 2020a; Wright & Cropanzano, 2000).

Sutherland & Cooper (1996) noted that individuals may be in job positions which do not reflect their skills or abilities. Not being able to use these skills and abilities to their full potential was acknowledged as being potentially damaging to not only mental health but also to offshore safety. Unfortunately, employees will remain in jobs that are a poor fit because there is a distinct lack of opportunities for change. Perceptions of restrictions on career direction can be disheartening and demoralising and may result in resentment towards the organisation, possibly at a cost to the organisation in the form of poor performance and reduced productivity (Sutherland & Cooper, 1996). In their three-year prospective study of blue-collar workers in Japan, Kawakami et al. (1992) found that job unsuitability contributed towards long-term depressive symptoms, a finding supported by Battams et al. (2014), who reported that poor job-person fit is significantly associated with depression. Job unsuitability may be particularly difficult for individuals to address as other factors of job stress such as workload can be buffered by social support (Kawakami et al., 1992). It is often difficult to substitute a poorly fitting role with a better option, particularly during periods of heightened job insecurity due to economic downturn, especially when money is such a motivating factor for FIFO employees (Henry et al., 2013). Financial stress can be intensified by family responsibilities, particularly for those who bear sole responsibility for family finances, and is a significant predictor of high or very high psychological distress (Bowers et al., 2018). Financial concerns also increase levels of family stress (James et al., 2018).

2.6.8 Health

A heavy physical workload leaves employees at risk of psychological distress (Parker et al., 2018), injury, fatigue (DMIRS, 2018; Mette et al., 2018a) and heat stress (DMIRS, 2020b). When high physical workloads are combined with factors such as low job control, they are at even greater risk of psychological stress (Virtanen et al., 2011). Sleep disturbances can lead to serious health conditions and increase the likelihood of injuries and serious accidents, particularly when combined with motion sickness and pain (Haward et al., 2013).

Exposure to stressful conditions causes the release of the stress hormones adrenalin, noradrenalin and cortisol, which have been firmly established as contributors towards long term health issues such as heart disease, gastrointestinal illnesses and psychological disorders. An increase in muscle tension through the body's stress response can result in an increased risk of musculoskeletal disorders due to the increased workload on the musculoskeletal system. Aside from responses to a physical injury, disorders of this type can develop due to the impacts of psychosocial factors (COSHA, 2019). Chronic illnesses are significantly associated to anxiety and depression, as is increased mortality (Pavičić Žeželj et al., 2019).

Vessel motion is strongly associated with negative effects on physical activities such as balance and movement. This is especially so when activities and tasks are performed outdoors. Furthermore, vessel motion can cause sleep problems and physical and mental fatigue (Haward et al., 2009; Jepsen et al., 2015). Cognitive aspects of task performance, and stomach awareness and dizziness have also been found to be strongly associated with motion magnitude. Likewise, lower back pain increased as motion magnitude intensified, possibly worsened by difficulties in carrying out physically challenging tasks while moving (Haward, et al., 2009). Individuals living with pain regularly experience psychological distress and feelings of hopelessness, leading to depression, together with limitations in family life, social activities and leisure involvement (Shaw-Mills, 2015).

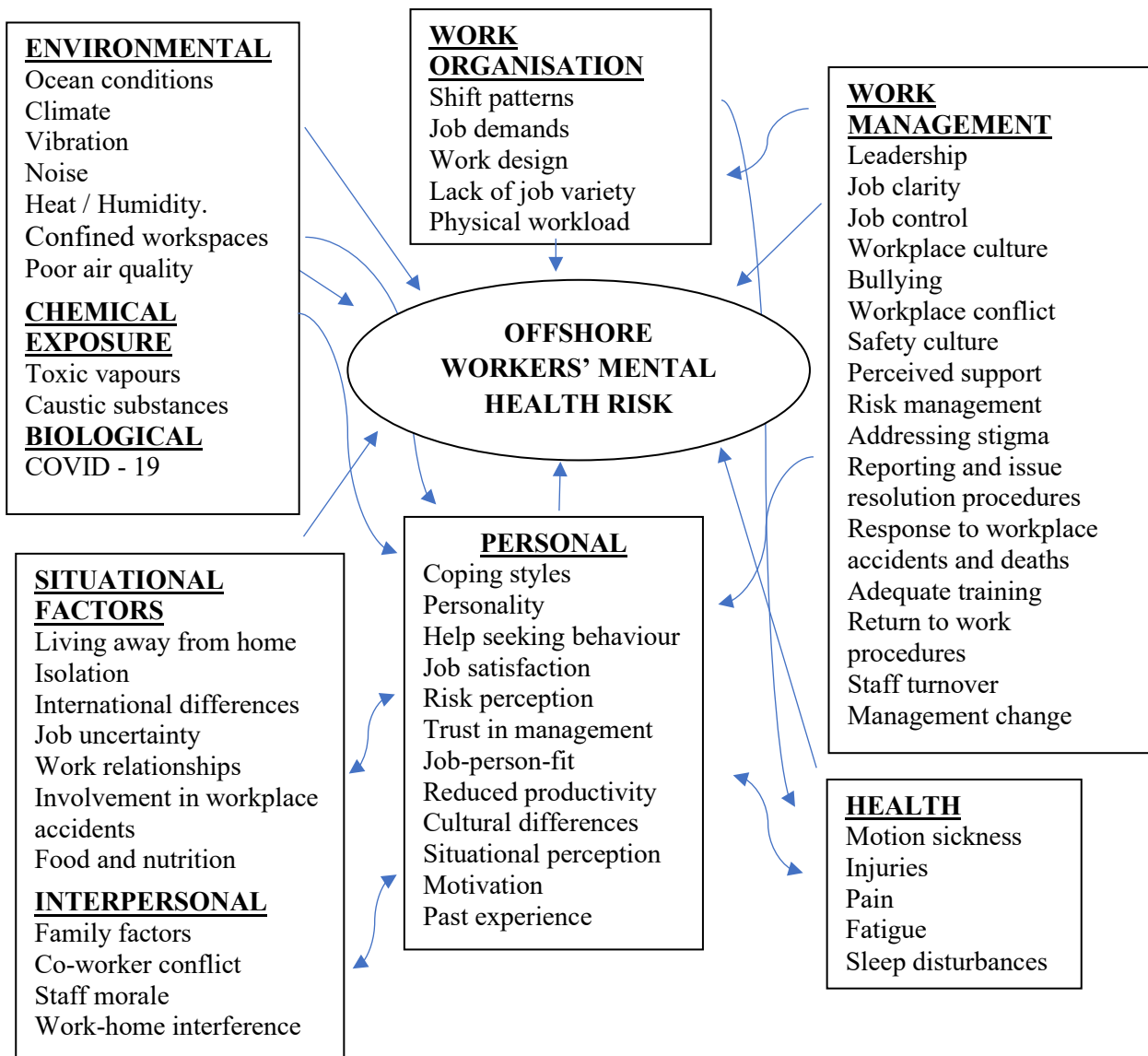
2.7 Conclusions and recommendations

2.7.1 Conclusions

Fly-in, fly-out (FIFO) workers endure a particularly unique set of challenges in their working life and offshore workers experience additional difficulties. The results of the literature search and review are summarised with the following model (figure 2.3):

Figure 2.3

Possible mental health hazards for the offshore oil and gas industry workers.



2.7.2 Recommendations

While there is a mentally healthy workplaces audit tool for onshore resource industry workers in Western Australia, there remains no tool to assess how effectively employers are removing barriers to creating a mentally healthy workplace offshore. A review of the literature reveals an urgent requirement for an audit tool catering specifically to the population of offshore oil and gas workers in Western Australia. It is vital to consider the effects of working offshore on mental health, exploring factors such as confinement to a work platform or vessel, restricted living conditions and privacy constraints. The extent of the problem is evidenced in the lack of inclusion of a mental health component in Commonwealth legislation. Psychological injury compensation claims pose significant costs for organisations, highlighting a need for insight into the causes and implications of psychosocial stressors. Challenges such as COVID-19 add urgency to the need for interventions tailored to offshore workers who may be already experiencing isolation, difficult working conditions, unstable work patterns and mental health issues. In particular, the remoteness of offshore locations, casualisation of the industry's employees, along with the demography of workers and their vulnerability to certain psychological disorders, can be said to exacerbate the need for interventions. Further research is required to address current gaps in knowledge.

Based on this section of the review of published literature the following article was written and is under second round review with *Safety Science* following minor amendments. This article is in Appendix 16.

The literature review continues in section 2 which examines the role of leadership style and personality.

.

Section 2: A Theory of New Parameters Defining the Roles of Leadership Style and Personality

2.8 Abstract

The purpose of this literature review was to identify the influences of leadership style on employee mental health, safety and productivity. A review of published literature was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis. It is proposed that leadership styles have a significant impact on several aspects of employee and work relationships and that different leadership styles should be utilised to effectively manage different personality types. The theory developed can assist leaders in implementing an effective management approach to their employees' individual personalities. Opportunities are now available to use and evaluate this theory in workplaces. The results convey practical opportunities for employment selection and training. Besides improving worker productivity, use of the new leadership parameters for the identified personality types will also enhance job-person fit and facilitate healthy interpersonal relationships in the working environment. A matrix was developed that extends the parameters of theories of personality by explaining how the authentic, situational, transformational, visionary and emotional intelligence leadership models can be used for different personality types, with the aim of reducing psychosocial stress and improving workplace safety, employee wellbeing and worker productivity.

2.9 Introduction

Evidence shows that personality, along with motivation and attitude, is of major interest to employers (Green et al., 1998). It is unlikely that personality traits change drastically after early adulthood (Cubel et al., 2016; Roberts & delVecchio, 2000) and after 30 years of age there is very little change (McCrae & Costa, 1994). Any change appears to be gradual and influenced mainly by physiological development rather than life events and experiences (McCrae & Costa, 1999). It is vital to understand the impact of personality traits and their effects on several aspects of individuals' work life. For example, personality has been found to have as much of an effect on earnings as cognitive abilities (Cubel et al., 2016), suggesting that it can independently predict income.

The theory developed from this critical analysis of published literature can be used by leaders across industries. However, for this research, the offshore oil and gas industry has been chosen as an example, as this is a workplace where good leadership is vital, due to workers and managers not only working together, but also living together, and in confined quarters for extended periods of time. Furthermore, it is an important example of a high stress working environment.

While there are studies which look at the personality of leaders, there are very few that consider how leaders can manage their employees according to their personality type. This article aimed to highlight the importance of how personality traits can affect mental health and aspects of work, particularly in high stress environments such as the offshore oil and gas industry. Recent travel restrictions and border closures due to COVID-19 have worsened job security, and roster changes resulting in compacted work schedules have resulted in added stressors (NOPSEMA, 2020b). Uncertainty around employment is significantly associated with moderate to very high levels of mental distress (James et al., 2018).

The integration of personality in considering job-person fit in industry in order to promote favourable mental health outcomes is important. Biersner and Hogan (1984) established the advantages of utilising personality inventories in considering the ability to adjust to isolated working conditions. Confined working and living areas place employees at risk of poor interpersonal relations and negative effects on team functioning and behavioural health (Landon et al., 2019). The effects of prolonged and confined isolation can leave workers vulnerable to changes in sleep and mood, despite comprehensive psychiatric screening. As each employee's performance is essential to the team, it is vital that individuals are able to adjust well to their surroundings, particularly as their replacement would pose difficulties in such an isolated environment. As a result, careful personnel selection is critical (Biersner & Hogan, 1984).

There is evidence that certain personalities are more suited to shift work (Berthelsen et al., 2015; Parkes, 2002; Saksvik et al., 2011; Tamagawa et al., 2007) and are more susceptible to poor sleep and sleep disturbances (Hennig et al., 1998; Parkes, 1993, 1998, 2002). Working on an offshore oil and gas facility exposes personnel to physical as well as psychological stressors when considering that geographical isolation, extended working hours (James et al., 2018; Virtanen et al., 2011), limited space, ocean conditions (Chen et al., 2009) and continuous noise (Gardner, 2003; Haward et al., 2009; Parkes, 2017; Smith, 1991) are ever-present. Because of these factors, offshore workers are susceptible to sleep disturbances, leading to major health and safety risks including injuries and accidents.

Personality traits have also been linked to help seeking and coping behaviours. (Beus et al., 2015; McCrae & Costa, 1986; Parkes, 1986). Considering these factors, it is particularly crucial to utilise authentic and effective leadership. This article investigates personality traits of the Five Factor Model of Personality (FFM) (Costa & McCrae, 1992) in relation to safety behaviours, productivity, leadership, accident involvement, shift work and sleep, by reviewing the relevant existing literature.

2.10 Research aim

The aim of this literature review was to determine how leadership style can be varied towards employee personalities, in particular the personality types of the Five Factor Model, with the aim of effectively managing workers.

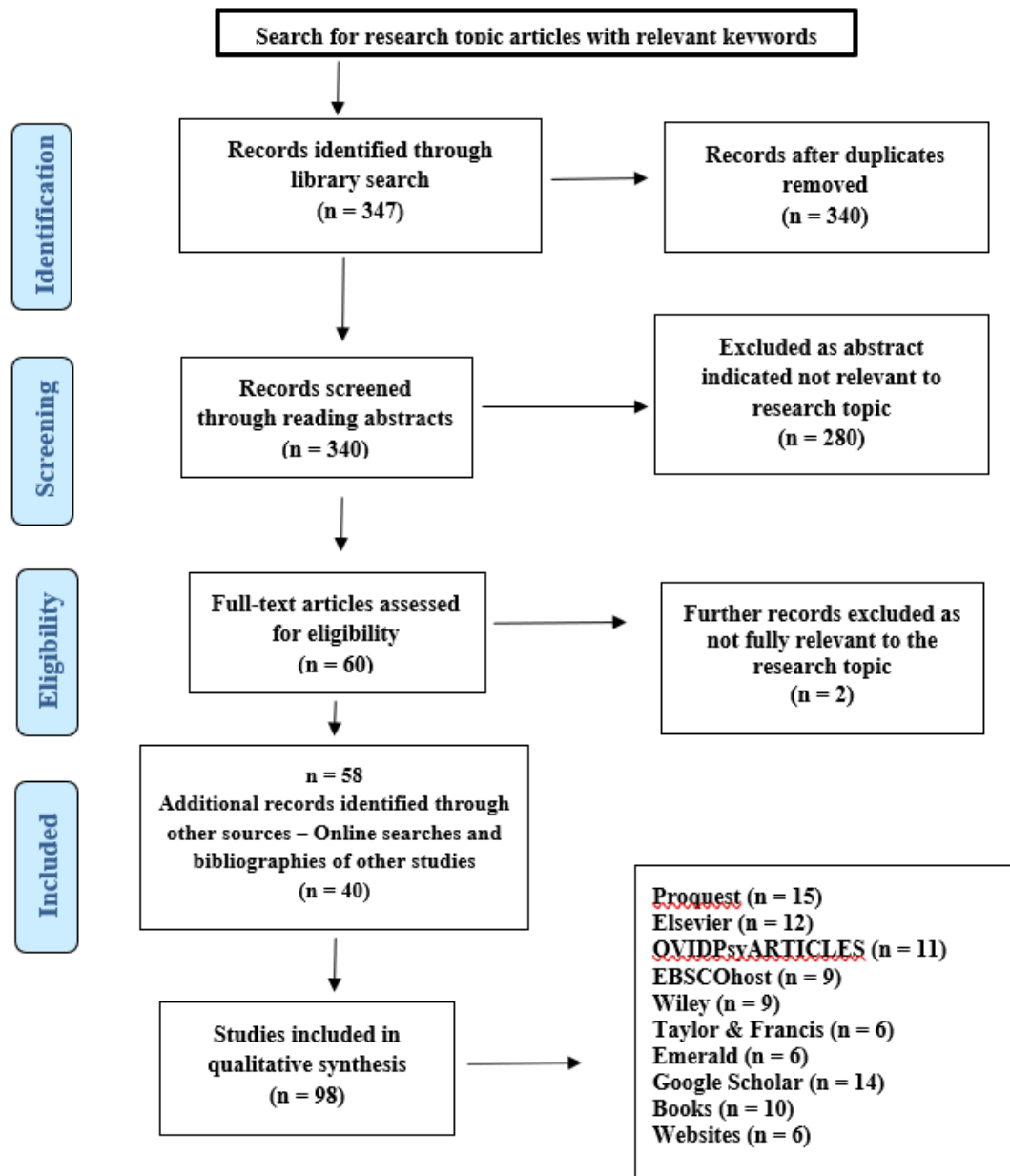
2.11 Method

A review of the literature was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA, 2009) checklist (Moher et al., 2009) and conducted through the library catalogue. Further articles were located through the recommendations of the journals and through reviewing the reference lists of identified articles. The following search terms were used: “personality at work and health risks in the mining industry”; “personality in offshore work”; “personality traits and shift work”; “Big five personality model and offshore work”; “personality and FIFO work”; “extraversion and safety at work”; “shift work in offshore work”; “leadership styles and employee personality” and “Management and leadership style”. Google Scholar was used to search for “personality, stress and accident involvement on offshore oil and gas facilities”; “extraversion and neuroticism moderating workplace accidents” and “Big 5 and leadership styles”.

Inclusion criteria were articles relevant to the theme of personality in offshore work. However, as there are few studies focusing on the offshore work environment, search terms were expanded to relate personality to factors within the offshore industry, such as shift work, work accidents and isolation. A total of 347 articles were identified. Exclusion criteria were publications not relevant to the topic, duplicates and non-English publications (searches were conducted in English). Inclusion and exclusion criteria are summarised in Figure 2.4 as follows.

Figure 2.4.

Flow chart depicting the article search and selection procedure



The article consists of two sections, where the first focuses on the personality traits of the FFM and the second proposes suitable leadership styles for managing employees.

2.12 Results

The FFM organises personality traits along the fundamental dimensions of Openness to Experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism. Openness to Experience refers to

broadmindedness, intelligence and curiosity. Conscientious individuals abide by rules, are thorough and responsible, and endeavour to avoid risk. Extraversion is characterised by sociability, cheerfulness and enthusiasm and agreeableness refers to cooperation, selflessness and prosocial behaviours. Individuals high in this trait seek to facilitate and protect interpersonal relationships (McCrae & Costa, 1987). Finally, neuroticism is characterised by emotionality, anger, irritability (Lahey, 2009), excitability (Buck, 2011) and a proneness to anxiety and stress (McCrae & Costa, 1987).

Barrick and Mount (1991) consider the FFM be robust enough to provide a relevant framework to develop and examine theories of personalities and how they relate to a diverse range of measures in the field of organisational psychology, particularly the selection of personnel, performance reviews and training and development programs. Clarke and Robertson (2008) pointed to the validity and robustness of the Big Five model of personality while conducting their study of the role of personality in workplace accidents, stating that this model provides a way of classifying personality traits in terms of involvement in workplace accidents within a cohesive framework. This is further emphasised by Obschonka et al. (2018), who stress that the “Big 5” personality traits are reliable indicators of psychological adversity, which is relatively stable across different cultures and varieties of samples (Barrick & Mount, 1991; McCrae & Costa, 1987). Findings from the literature review are summarised in Table 2.1 and in Figure 2.5:

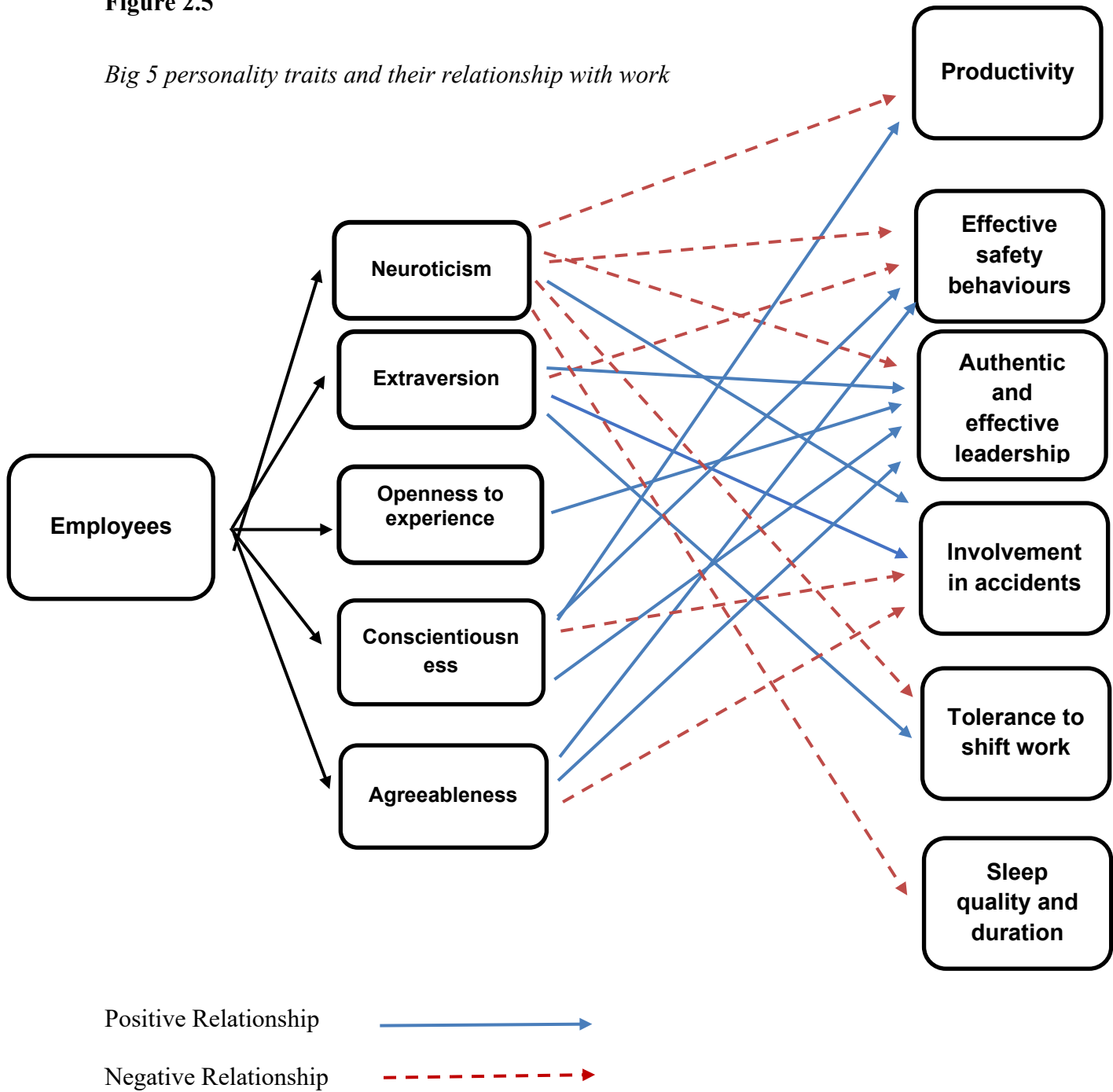
Table 2.1*Personality traits and their association with work stressors*

Personality Trait	Effect	Author
Big 5 personality types		
Neuroticism	Belief they cannot control their environment	Buck (2011); Pourmazaherian et al. (2018)
	Less able to complete tasks	Buck (2011)
	Easily distracted by stimuli/preoccupied with external stressors	Buck (2011); Eysenck (1962)
	Poor safety behaviours	Beus et al. (2015); Gao et al. (2020)
	Less able to form constructive interpersonal relationships	Beus et al. (2015)
	Sleep problems and poor sleep quality	Hennig (1998); Parkes (2002)
	Poor adaption to circadian disturbances	Hennig (1998)
	Low impulse control	
	Negative emotions (e.g., anger)	Beus et al. (2015)
	Less able to use effective coping strategies	Beus et al. (2015); Lahey (2009) Beus et al. (2015); McCrae & Costa (1986); Parkes (1986)
	Intolerance to shiftwork	Tamagawa et al. (2007)
	Making irrational decisions	Beus et al. (2015)
	Detrimental to productivity	Cubel et al. (2016) Chen & Chen (2013)
Extraversion	Poor safety behaviours	Beus et al. (2015); Gao et al. (2020)
	Involvement in accidents	Clarke & Robertson (2008)
	Increased reporting of accidents	Parkes (1998)
	Easily distracted	Buck et al. (2011)
	Higher tolerance of shift work	Saksvik et al. (2011)
	Engages in transformational leadership	Judge & Bono (2000)
	Action-oriented	Lopez-Perry (2020)
Openness to experience	Frustration with safety procedures	Beus et al. (2015)
	More likely to engage in deviant work behaviours	Beus et al. (2015)
	Open to new ways of thinking	Lopez-Perry (2020)
	Broad-minded	Barrick & Mount (1991)
Conscientiousness	Lower rates of accident involvement	Buck et al. (2011)
	Improved safety behaviours	
	Risk avoidance	Beus et al. (2015); Gao et al. (2020)
	Predicts compliant safety behaviour	Breivik et al. (2020)
	Perform better	Rau et al. (2020)
Achievement-oriented	Cubel et al. (2016) Lopez-Perry (2020)	

Agreeableness	Lower rates of accident involvement	Buck et al. (2011)
	Improved safety behaviours	
	Risk avoidance	Beus et al. (2015); Gao et al. (2020)
	Unlikely to engage in risky safety behaviours	Breivik et al. (2020)
	Predicts compliant safety behaviour	Beus et al. (2015); Buck (2011)
	Motivated to get along with others	Rau et al. (2020) Judge et al. (2002)

Figure 2.5

Big 5 personality traits and their relationship with work



Note: Adapted from *Mediation models including region-level Big Five sub-facets for the prediction of regional differences in well-being and personality traits related to psychological adversity*, by M. Obschonka et al., 2018, *Journal of Personality and Social Psychology*, 115(5), 903. (<https://mpra.ub.uni-muenchen.de/89645/>)

In Australia's oil and gas workforce, 44 percent of employees are classed as highly skilled (e.g., petroleum engineers, geophysicists, construction managers), 35 percent are medium skilled (e.g., exploration drillers, inspectors) and 21 percent are lower skilled (e.g., field assistants, labourers, general hands) (National Energy Resources Australia, NERA, 2018). Literature suggests that managers on offshore facilities contend with high levels of responsibility and stress. Ensuring the safe operation of the offshore installation and responsibility for employee wellbeing and productivity mean that shift patterns for offshore managers are of critical importance, and guaranteeing the optimum environment for effective communication, decision making and prompt emergency response should be reflected in work patterns (Parkes, 2012). Lower skilled positions, such as labourers and general hands (NERA, 2018) generally have some degree of repetitiveness, mundane work (Cubel et al., 2016) and unchallenging work, despite the fact that they may once have involved a certain level of skill. Repetitive tasks can lead to boredom, apathy and disengagement, resulting in attention lapses and inadequate reactions in emergency situations (Sutherland & Cooper, 1996).

2.12.1 *Interpersonal*

Individuals high in agreeableness seek to facilitate and protect interpersonal relationships (McCrae & Costa, 1987) and are unlikely to compromise group cohesion by engaging in risky safety behaviours (Beus et al., 2015; Buck, 2011). Furthermore, high levels of agreeableness are associated with the motivation to foster meaningful interpersonal relationships (Judge et al., 2002). While technical proficiency is essentially guaranteed on offshore facilities, Biersner and Hogan (1984) point to the importance of social harmony, stating that participants in their study considered interpersonal compatibility to be as important as technical competency. Individuals high in neuroticism are more prone to self-consciousness, hostility and vulnerability (Lahey, 2009). They are less able to successfully complete work tasks and less able to form constructive interpersonal relationships, particularly in stressful environments or situations (Beus et al., 2015). The ability to create and maintain harmonious working relationships and fulfill tasks would be facilitated by the act of working safely, yet this is more difficult to achieve for those high in neuroticism due to a preoccupation with external stressors and negative thoughts, which ultimately place strain on interpersonal relationships at work and result in distracted thought processes, which in turn affect safety outcomes, a finding previously identified in Eysenck's (1962) research, where 'attention to task' may mediate the relationship between neuroticism and accidents (cited in Hansen, 1989). However, Chen and Chen (2013) emphasise the lack of positive research into neuroticism in the workplace, particularly from a psychophysical perspective. While employees with high levels of neuroticism have a heightened response to negative physical stimuli, this can nevertheless be successfully managed in the workplace. In fact, neurotic personalities can potentially benefit organisations. Leung et al.'s (2014) study found

that those classed as innately neurotic reacted to problems with more creative solutions when they had remembered a distressing event. However, in Clarke and Robertson's (2008) study, while neuroticism was associated with accident involvement, there was evidence that this relationship varied across situations.

Barlow et al. (2014) suggest the potential of neuroticism as an emotional condition, raising the possibility that workers with high levels of this trait may be more manageable than previously considered. This suggests that they may be more receptive to direct treatment, implying there may be a significant impact at a public-health level, a concern which Lahey (2009) considers to be of top priority in research. Mindfulness-based cognitive therapy research by Armstrong and Rimes (2016) further supports the theory of neuroticism as malleable and responsive to intervention.

Positive associations have been found between extraversion and neuroticism and accidents (Lajunen, 2001; Lester, 2000). However, it must be noted that Clarke and Robertson (2005) found that extraversion was only linked to traffic and not occupational accidents and Henning et al. (2009) found this trait to be positively linked to safety attitudes. Nevertheless, both these traits have been linked to risky safety behaviours (Beus et al., 2015; Gao et al., 2020). Given that neuroticism is strongly associated with many mental and physical disorders, identifying the root causes and means through which these disorders are connected to neuroticism may assist in the development of strategies for intervention, (Chen & Chen, 2013).

Conscientiousness and agreeableness are associated with lower rates of occupational accidents. Buck (2011) suggests this may be because individuals high in these traits have the ability to focus on tasks and are not as easily distracted as those high in neuroticism and extraversion or with low levels of agreeableness. Because cautiousness is a facet of conscientiousness (Costa & McCrae, 1992), conscientious individuals are more likely to follow rules and attempt to avoid mistakes (Henning et al., 2009). Clarke and Robertson (2008) found that low agreeableness was a valid predictor of accidents, and Bogg and Roberts (2013) suggest the inclusion of conscientiousness in future medical and public health research in order to understand how this trait might facilitate improved health outcomes. Beus et al. (2015) found that conscientiousness and agreeableness were negatively linked to risky safety behaviours, a finding echoed by other researchers (Gao et al., 2020; Pourmazaherian et al., 2018). Likewise, both Beus et al. (2015) and Gao et al. (2020) found that neuroticism and extraversion held the opposite relationship with safety behaviour. There are other researchers, however, that have found either no relationship or a negative relationship between neuroticism and risk (Borghans et al., 2009; Rustichini et al., 2016).

Individuals high in openness tend to be curious, independent, imaginative and artistic (Buck, 2011). While these are all generally healthy traits, those with high levels of openness to experience can become frustrated with routine and rules and are more likely to seek greater control in response to their lack of autonomy. Engaging in risky safety behaviours conflicts with this because in a high-risk environment safety procedures must be strictly adhered to (Beus et al., 2015). High-risk industrial marine environments, such as offshore oil and gas facilities, pose serious risk to employee safety if there are lapses in attention caused by fatigue or interpersonal stressors. Sensation seeking (Zuckerman, 1994) is strongly associated with the excitement seeking aspect of extraversion and has been linked to traffic accidents (Aluja et al., 2003; Clarke & Robertson, 2005) and unsafe behaviours (Beus et al., 2015). A possible explanation for this may be an extravert's lower levels of vigilance (Eysenck, 1962), which could affect focused attention and the ability to perform tasks safely. Openness to experience can also be considered along these lines, whereas agreeableness and conscientiousness are linked to risk avoidance (Breivik et al., 2020).

2.12.2 Job control

As low decision latitude is linked to negative mental health outcomes, for example anxiety, depression, stress, low self-worth, fatigue and apathy (Amponsah-Tawiah et al., 2014), ensuring that employees have acceptable levels of job control appears vital to enable them to cope with work demands (Karasek, 1979). Where there are high job demands and low decision latitude, increased job control can function as a buffer, mitigating the risk of psychological stress (Virtanen et al., 2011). Furthermore, increasing job control can increase levels of agreeableness, openness to experience and conscientiousness. However, neuroticism levels have been found to increase and extraversion levels have been found to decrease when job stress is considered (Wu, 2016). Low job autonomy can also foster feelings of helplessness and often lead to interpersonal conflict (Nielsen, 2013).

Beus et al. (2015) emphasise the tendency to make irrational decisions for individuals high in neuroticism, primarily due to low impulse control and negative emotions such as anger. Often these individuals do not believe that they can control their environment or affect it in any way, and so are less inclined to seek control over their circumstances (Judge, 1993), which is concerning as level of job control is a major contributor to fatigue and injury (Department of Mines, Industry Regulation and Safety and Worksafe, 2018) and their response to stressors such as fatigue can negatively affect ability to perform tasks. This is problematic because the offshore working environment is not only a high risk one, but there are further factors which can affect performance and therefore safety behaviours. Moreover, increased work pressures or negative interpersonal interactions can exacerbate these effects (Buck, 2011). There is also evidence that personality traits are linked to job satisfaction,

with extraverts reporting higher levels of job satisfaction and individuals high in neuroticism reporting lower levels of job satisfaction (Cropanzo et al., 1993).

2.12.3 Shifts and sleep

A link between shift patterns and an aspect of personality was found in Berthelsen et al.'s (2015) cross-sectional study, where revolving shift workers exhibited higher levels of neuroticism. In their study of 89 policemen and women, Tamagawa et al. (2007) found that personality traits were significantly associated with shift work tolerance. In particular, neuroticism was found to have a positive relationship with shift work intolerance. Their results showed that sleep on night shifts was negatively associated with trait anxiety, whereas fatigue for those on rotating shifts was positively related to trait anxiety. As trait anxiety is part of the neuroticism dimension, this further points to the importance of incorporating this personality trait when considering shift workers and disruptions in sleep. Neuroticism has been linked to poor adaptation to circadian disturbances, which was measured by Hennig et al. (1998) through changes in cortisol levels. Parkes (1993) reported significant associations between neuroticism and sleep quality, where those with higher levels of neuroticism slept for shorter periods, particularly when on night shifts. Negative affectivity, assessed by neuroticism and where individuals tend to see themselves and their environment negatively, was found by Parkes (2002) to negatively affect sleep quality. Similarly, low neuroticism and high extraversion scores are associated with higher tolerance of shift work (Saksvik et al., 2011). Sleep quality can be affected by factors such as permanent noise, which has been rated as being a major stressor for offshore workers, hampering effective communication and disrupting sleep quality and duration (Gardner, 2003; Haward et al., 2009; Landon et al., 2019; Mette et al., 2018; Sutherland & Cooper, 1986).

2.12.4 Help seeking

The willingness to seek help or support can be influenced by many factors. The culture of a workplace and attitudes of colleagues, particularly in a male-dominated environment such as offshore oil and gas facilities, can thwart the process of seeking help for psychological issues (Henry et al., 2013). Extraverted and optimistic individuals have been found to be more likely to seek support, whereas individuals with high levels of pessimism tend to use avoidance coping strategies rather than problem solving resources. Help-seeking behaviour for stressors which affect the family have been associated with lower family-work interference (Thompson et al., 2007). For direct coping, extraverts actively uphold adaptive coping strategies, while those high in neuroticism tend to employ reality-distorting strategies, as well as withdrawing and self-blaming (Parkes, 1986). In general, individuals with high

levels of neuroticism are generally less able to use effective coping strategies (McCrae & Costa, 1986; Parkes, 1986).

2.12.5 Productivity

Cubel et al. (2016) found that neuroticism has a significant negative effect on productivity, compromising performance by undermining the ability to concentrate on tasks, particularly when under time constraints, while employees with higher levels of conscientiousness appear to perform better on these tasks. Barrick and Mount's (1991) study of a variety of occupational groups included professionals (such as engineers), managers (from foremen to chief executives) and skilled/semi-skilled workers. Conscientiousness was found by the researchers to be the strongest predictor of performance at work across occupations, implying it to be a desirable trait in organisational leaders. They also found that extraversion was a predictor of job performance, likely due to higher levels of interpersonal skills found in extraverts.

2.12.6 Leadership

Leaders not only have to find the right worker for the position but must also consider their own leadership style in a contextual sense. What may be beneficial in one situation may not be useful in another. While there have been studies examining how to manage employees with personality disorders (Miller, 2003), there is a distinct lack of research into how leaders can manage their employees according to the FFM. Effective leadership must also be sustainable across cultural backgrounds and situations (Kaluza et al., 2012).

2.13 Transformational leadership model

Leaders practicing transformational leadership attempt to motivate their employees and encourage them to achieve organisational objectives and goals (Sahraee & Abdullah, 2018). Several authors recommend a transformational style in leadership, which is characterised by a focus on displaying ethical and moral behaviour (idealised influence), inspirational motivation, attentiveness, intellectual stimulation (Kaluza et al., 2012), and a nurturing of change, growth (Nielsen, 2013) and challenges. Kaluza et al., (2012) and Erkutlu (2008) concluded that this style of leadership encourages worker commitment to their organisation, which leads to higher levels of job satisfaction and lower levels of stress. Transformational leaders observe the needs of their employees and encourage their personal growth through coaching and mentorship (Bass & Riggio, 2006). Transformational leadership has been associated with employee compliance with safety procedures, on both an interpersonal and organisational level (Inness et al., 2010). The main facets of transformational leadership foster individual creativity, welcome the generation of new ideas and emphasise cooperation and teamwork

(Sahraee & Abdullah, 2018). Likewise, transformational leadership suits extraverted individuals, as their sociability and energy (McCrae & John, 1992) is fostered.

Results show that employees who are high scorers on openness to experience are most suited to a transformational leadership style (Sahraee & Abdullah, 2018), confirming to the tendency for open individuals to favour creativity and innovation (McCrae & John, 1992). As individuals who score highly on openness need to feel motivated and inspired, the “Inspirational motivation” aspect of this leadership style can be used to encourage and challenge them. Likewise, “Intellectual stimulation” challenges the scope of their creativity and strong sense of innovation, and both domains of transformational leadership have been found to be positively related to creative performance. Furthermore, they have been shown to build team trust through influencing team communication, resulting in fewer errors and improving task performance (Boies et al., 2015).

Neurotic individuals are averse to change (Chen & Chen, 2009) and may find it difficult to have confidence in a leader that is focused on implementing new ideas (Sahraee & Abdullah, 2018). Although employees with high levels of neuroticism are generally not compatible with this type of leadership (Hetland et al., 2008; Judge & Bono, 2000), the “Individual consideration” aspect of the transformational leadership model can be utilised to support, mentor and empower all employees. Hetland et al. (2008) found a positive association between high agreeableness and transformational leadership, potentially because agreeable individuals embody the individual consideration and inspirational motivation facets of transformational leadership (Kuhn, 2001).

2.14 Authentic leadership model

Authentic leadership, also characterised by leader-follower behaviour and an extension to transformational leadership through additional ethical behaviours, has a direct positive effect on the work environment (Hystada, 2013), while also fostering a positive moral environment (Nielsen, 2013). Authentic leadership is typified by an intrinsic moral aspect, where ethical and moral actions are emphasized, and has similar components to transformational leadership, thus they work well together (Luthans & Avolio, 2003). Self-awareness ensures that leaders display behaviours that mirror their internal values, carrying out their work with meaning and integrity. Furthermore, they endeavour to establish lasting relationships with colleagues, employees and customers (George, 2003).

Authentic leadership fosters conditions that encourage positivity, while focusing on employees’ strengths, creating an environment conducive to high levels of trust (Avolio & Gardner, 2005). Trust levels appear to remain low in high neuroticism scorers and innovative interactions with management

are generally perceived as negative, while perceptions of support are lowered (Chen & Chen, 2013). Therefore, the focus of managing employees with low levels of emotional stability should be on alleviating their anxiety. Assisting these employees to utilise their own strengths and find direction and connection in the workplace shows the advantages of authentic leadership in its cultivation of supportive work conditions (Avolio & Gardner, 2005).

2.15 Visionary leadership model

Visionary leadership is described as an approach which embodies spiritual, emotional, mental and physical components and has shown promising research study results (Chen & Chen, 2013; Elenkov, Judge & Wright, 2005; van der Voet & Steijn, 2020). In fact, visionary leadership has been proposed as the most appropriate approach for managing employees with high levels of neuroticism, as it seeks to provide them with confidence and hope, encourages them to improve and is focused on emotional resilience (Chen & Chen, 2013). As those high in neuroticism require vision and to be inspired, a visionary leader will inspire self-improvement in employees due to their person-focused management style, ensuring that they see problems as opportunities, rather than insurmountable challenges.

It is a style that encourages mutual listening and shared ideas, helping to build emotional resilience in employees and thus enabling them to contribute successfully to the organisation. Moreover, increasing workers' levels of perceived innovative interaction could be critical in improving performance and is achievable through generating inspiration during planning exercises, which will shape a common vision and objective, providing neurotic employees with sense of optimism and vision. Employees scoring highly on openness require intellectual stimulation and seek autonomy so these employees do not require a high degree of supervision and are capable and confident with safety.

At the same time, employees with very high levels of agreeableness can be inclined to neglect their own needs in favour of the needs of others in the team, which may result in colleagues considering them to be overly dependent, untrustworthy or uninvolved. They may be less inclined to encourage autonomous or critical thought, and, due to the inclination towards pleasing others and avoiding conflict, may ignore workplace mistakes and suppress opinions which oppose the general view. As a consequence, collective task performance can be compromised (Curseu et al., 2018). Helping highly agreeable individuals to develop more assertive behaviours will mitigate their tendency to overcommit. It must also be noted that disagreements and conflicts are not necessarily always unhealthy or destructive but can be constructive (De Dreu & Gelfand, 2008; Deutsch et al., 2011; Jehn, 1997; Tjosvold & Yu, 2007, cited in Ayub et al., 2017).

2.16 Situational leadership model

Hersey et al.'s (1979) situational leadership model focuses on the interaction between task behaviour and relationship behaviour, guided by the maturity, or "readiness" (Schermerhorn, 1997, p. 7) to carry out particular functions and tasks. It is categorised into individualised consideration, intellectual stimulation, inspirational motivation and idealised influence. Situational leadership recommends that all individual employees are dealt with on the basis of the situation and its dynamics, However, this may be more difficult when dealing with large groups, due to time constraints on managers (Thompson & Glasø, 2015). There are four distinct styles to this model – "Telling", "Selling", "Participating" and "Delegating" (Hersey et al., 1979, p. 422).

"Telling" leadership will provide employees with a high level of direction and detail, ideal for individuals who may feel overwhelmed or lack experience in the tasks they are required to perform. This is ideal for those whose performance readiness is defined as "I need clear structure and direction" (The Center for Leadership Studies, 2017. p. 4), so would be appropriate for employees who score highly in neuroticism, where they are firmly and clearly guided, given feedback and closely monitored, at least until the employee feels confident in their own performance. In due course, this may be replaced by a "Selling" style, where high neurotic employees are more motivated but still need to be encouraged and motivated (The Center for Leadership Studies, 2017) or the "Participating" style, where performance readiness is described by the statement "I have a good understanding of what to do, but I need support" (The Center for Leadership Studies, 2017. p. 4). In the latter style, managers will support risk taking in a controlled environment while encouraging employee input.

As highly agreeable individuals are helpful, cooperative and nurturing (Barrick & Mount, 2005), yet are unlikely to take unnecessary safety risks (Beus et al., 2015), they may also benefit from the "Delegating" component of situational leadership, where employees are competent, motivated and confident of their performance (The Center for Leadership Studies, 2017) and are permitted to determine the specifics of that performance. The Delegating style is also ideal for conscientious employees and those who have high levels of openness. Both are capable and motivated personalities.

2.17 Emotional intelligence model

Emotional intelligence is a fundamental driving force for positive safety behaviours (Jeffries, cited in Kaluza et al., 2012). Emotional intelligence leadership has several components, most of which can be applied to the five personalities of the model. Using emotional intelligence has been shown to discourage workplace bullying (Sheehan, 1999, cited in Kaluza et al., 2012) and increase group performance and group adherence to work health and safety practices (Urch et al., 2001, cited in

Kaluza et al., 2012). The emotional intelligence model consists of the following substyles of leadership: Coercive style, Authoritative style, Affiliative style, Democratic style, Pace-setting style and Coaching style.

The Authoritative style of this model is more apt when organisations are looking for new vision, which is ideal for employees who score highly on openness. It gives clear direction and demonstrates how their own work plays a part within the organisation's framework (Goleman, 2000). To a certain extent, the authoritative style may benefit neurotic employees, who crave vision and motivation to counteract their anxiety (Chen & Chen, 2009). However, the Affiliative style of emotional intelligence leadership is a more suitable approach for those high in neuroticism, as it develops emotional connections and gives priority to the individual, placing value on the emotions of employees rather than their tasks and offering substantial feedback. It is effective at rebuilding broken trust, where employees may be suspicious or wary, a common finding in neurotic individuals, and can improve employee relations by demonstrating emotional sincerity. Goleman (2000) points out the lack of constructive guidance on how employees can improve in the affiliative style, hence recommends that it be used in combination with the authoritative style.

Those high in neuroticism also benefit from the Coaching style of Emotional Intelligence leadership, which places emphasis on supporting employees and giving them the feedback they require. Further benefits of this aspect of leadership include positive effects on performance and on the work climate (Kaluza et al., 2012). As neurotic people often feel that they have little control over their environment (Judge, 1993) a coaching style enables leaders to direct employees whilst also supporting them in developing their own skills (Kaluza et al., 2012). Employees who have high levels of openness to experience may benefit from a pace-setting style, where their manager will push them harder to perform. However, it is recommended that pace-setting is only utilised in highly competent and self-motivated teams, otherwise there is limited guidance and employees lose initiative, commitment and self-discipline (Kaluza et al., 2012).

Primarily defined by their motivation to foster relationships, agreeable and conscientious individuals will benefit from emotional intelligence leadership. Furthermore, agreeable individuals perform worse when leaders express anger, compared to when they express happiness or no emotion (van Kleef et al., 2010). While the overall model of emotional intelligence improves group performance, the Democratic style encourages shared discussions and joint decision making while encouraging participation. Using participation and encouraging employee input to reach an agreement positively influences the work environment and the commitment of employees, as well as promoting trust and respect (Kaluza et al., 2012). The Democratic style of emotional intelligence leadership is also

beneficial to extraverts, who are typically active, dominant and seek excitement (Costa & McCrae, 1992) and are drawn towards jobs which require social skills (Judge & Zapata, 2015). Those with high levels of extraversion will seek to become involved in activities and projects requiring joint collaboration, and which aim to attract and sustain the attention of fellow employees.

Varying leadership style in accordance with personality type can be useful in managing employees. According to Goleman (2000), managers need to utilise a range of styles to be an effective leader. Furthermore, it is advisable for them to diversify their leadership style should they feel it lacks variety or has become too restricted by one style, assuming that leader is mindful of the aspects of emotional intelligence that can assist them. Different leadership models often have several components, yet for the personalities from the FFM, only some are fitting. For example, one would not employ a coercive leadership style when they have neurotic, or even agreeable, employees. In fact, this leadership style is rarely recommended, except perhaps in emergency situations (Kaluza et al., 2012). The suitable leadership styles for each of the personalities on the FFM are shown in Table 2.2 as follows. All assumptions in the matrix are supported by previously published literature.

Table 2.2*Leadership style-personality trait matrix for managing employee personalities*

	Openness to Experience	Conscientiousness	Extraversion	Agreeableness	Neuroticism
Authentic Leadership					√
Transformational Leadership – “Individual consideration”				√	√
Transformational Leadership – “Inspirational motivation”	√			√	
Transformational Leadership – “Intellectual stimulation”	√				
Visionary Leadership	√			√	√
Situational Leadership – “Telling”					√
Situational Leadership – “Selling”					√
Situational Leadership – “Participating”					√
Situational Leadership – “Delegating”		√			
Emotional Intelligence – “Affiliative Style”					√
Emotional Intelligence – “Coaching Style”					√
Emotional Intelligence – “Democratic Style”			√	√	
Emotional Intelligence – “Pace-setting Style”	√	√			
Emotional Intelligence – “Authoritative Style”	√				

2.18 Limitations

Although the FFM is robust, there are several limitations that must be considered when attempting to match a leadership style to personality traits. Personality traits may moderate each other. For example, conscientiousness is positively related to job performance (Barrick & Mount, 1991), yet if a conscientious individual is low on agreeableness, they may be seen by others as demanding, inflexible, rude, difficult and having a tendency to micromanage others. Furthermore, they are viewed by supervisors to have lower levels of performance than conscientious workers with higher agreeableness levels (Witt et al., 2002). There may also be further biases, such as failure to control for factors such as employee engagement and task familiarity.

There is no doubt that certain personality traits influence perception of leadership and several authors have found this outcome in different contexts. In a Saudi Arabian bank, Almandeel (2014) found high neuroticism scorers as being less likely to perceive their leader as being transformational, yet employees with high levels of conscientiousness tended to hold the perception that their employer used a transformational style to lead. Similarly, employees with high levels of extraversion were more likely to perceive their leader to be utilising transformational leadership than those with low levels of the trait in Felfe and Schyns' (2006) study on psychology students. Furthermore, they rated this leadership style more positively, which suggests that extraversion (or indeed other traits) may moderate the relationship between leadership style and leadership acceptance, rather than effectiveness of leadership being solely down to one certain style. In other words, employees high in extraversion. Additionally, the theory that followers prefer leaders that exhibit personality traits similar to their own has been posited in several studies (Felfe & Schyns, 2006; Felfe & Schyns, 2010; Keller, 1999).

2.19 Conclusions and recommendations

The results of this review indicate that personality traits on the Five Factor Model can form a useful framework for which type of leadership is suited to employee personality along the personality continuum. As highlighted, openness to experience, conscientiousness, extraversion and agreeableness all have characteristics that can be best managed through the implementation of a variety of leadership styles. While neuroticism has been linked by many researchers to unfavourable organisational outcomes, it has been shown that employees scoring highly on this trait can be managed, and managed well, with the right type of leadership. In a high-risk environment such as offshore oil and gas facilities, ensuring safety procedures are followed is vital to everyone's safety and wellbeing. Regardless of qualifications, individuals who are not emotionally stable, are not concerned with social acceptance and group cohesion, or seek novel and risky sensations may not be

suiting to such an environment. This review holds valuable insights into the importance of personality in personnel selection for high-risk environments, such as offshore facilities. Findings may enable organisations to identify employees who may be vulnerable to accidents. The findings of this review can be applied to other work settings which feature similar environments and contain similar stressors, such as isolation, confinement, shift work and fatigue. They can facilitate a streamlined risk assessment process for organisations and improve existing psychosocial evaluations.

The findings of this review, and the subsequent matrix generated, can help employers and organisations identify the personality traits which impact safety behaviours, sleeping patterns, shift work and the likelihood of being involved in accidents. Furthermore, the matrix can identify how attributes of personality can influence leadership style, ultimately supporting organisational processes for selecting managers and leaders. Managers and leaders are urged to identify the various personalities of their employees so that they are able to implement beneficial methods for them to work together to foster a productive and rewarding team environment.

Recommendations are made to use this matrix in industry to validate the findings of this review of published literature on the best leadership style to use to manage employees with specific personality traits.

An article was published based on this literature review with quotes from the focus group and pilot study participants included. This article is located in Appendix 13.

Reference:

D'Antoine, E., Jansz, J, Barifcani, A, Shaw-Mills, S, Harris, M. & Lagat, C. (2023). COVID-19 and offshore oil and gas workers: The role of personality. *Social Sciences & Humanities Open*. 7(1), 100402. <https://doi.org/10.1016/j.ssaho.2023.100402>

The following section describes the study methodology.

3. RESEARCH METHODOLOGY

3.1 Introduction

The aim of this research was to identify offshore oil and gas workers' mental health hazards and develop risk control measures. This chapter provides a description of the research methodology and the design phases of the research. The chapter also discusses the approach used to address the research objectives. Interpretative Phenomenological Analysis (IPA) was used in this study. All qualitative data, including the focus group discussion and interviews was analysed through NVivo, where results were compared against the findings of the literature review.

3.2 Qualitative research

Qualitative research methods are appropriate when researchers seek understanding for the occurrence of phenomena. Common data collection methods are focus group discussions and interviews (Moser & Korstjens, 2018), which were utilised in this study. Generally, the design of qualitative research is flexible and versatile, able to adapt to the changing knowledge of the researcher during the collection of data. It requires the researcher to immerse themselves deeply and consistently within the analysis process while keeping in mind that a holistic understanding of the phenomena must be achieved (Polit & Beck, 2010).

3.3 Phenomenological approach

3.3.1 Introduction

Phenomenology is the thorough and methodical investigation of the lived experience and is especially suited to fields that identify individual experience as being of significant importance (Miller, 2003; Smith et al., 2009). Phenomenology is essentially a philosophical approach, historically more concerned with finding the deeper meaning in taken-for-granted human experiences rather than the development of theory (Moustakas, 1994). As noted by Smith et al (2009), phenomenology allows for the thorough examination of the phenomenon of human perceptions of situations, communicable in their own terms and independent of predetermined categorised frameworks. Through thoughtfully managed interviews around subjects of significant personal importance and careful interpretation of the resulting data, phenomenological inquiry makes a major contribution to the field of psychology (Smith et al., 2009).

3.3.2 *Philosophical foundations*

Events alone do not determine an individual's experience or understanding of a phenomenon (Yin, 2016). Rather, experiences of the offshore working environment will differ between individuals, based on several factors such as personality, type and level of job and health status. Phenomenological analysis is an ideal method to investigate how different employees in the offshore oil and gas industry perceive and interpret their environment due to its focus on variances in perceptions of experiences (Patton, 1990). Furthermore, a phenomenological study considers social and cultural contexts as well as participants' understanding of events (Yin, 2016).

Interpretive Phenomenological Analysis (IPA) observes the multifaceted origins of branches of psychology (Smith, 2004). IPA, underpinned by phenomenology, is a contemporary approach in qualitative research, and whilst its flexible nature emphasises the diverseness of lived experiences and gives priority to the investigation of context, it remains a robust and rigorous process.

It is an appropriate method for this study because it has uncovered how participants perceive and understand their environment and explores the meanings that individuals give to their experiences. By embracing multiple concepts from philosophical ideologies, the meaning of interpretive phenomenological analysis becomes increasingly layered and in-depth. Phenomenological research aims to access rich data from individuals' perceptions of experiences that are often overlooked in day-to-day life (Finlay, 2011).

3.4 Literature review

An extensive review of the published literature was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) (Moher et al., 2009). The aim of the literature review was to establish what was known about mental health hazards for Australian offshore oil and gas workers. Furthermore, the literature review aimed to discover the causes of these risk factors and what risk control measures were in place to counter them. It was found that there was a gap in knowledge related to this particular topic as no previous researcher had looked widely at this topic to determine the possible management, work organisation, environmental, chemical exposure, biological, personal, health, interpersonal and situational factors that could be mental health hazards for Australian offshore oil and gas industry workers.

3.5 Focus group

3.5.1 Introduction

Focus groups grant the researcher the opportunity to hear multiple speakers at one time (Smith et al., 2009). They can be used as a stand-alone approach to investigation or combined with other research methods (Flick, 2007). The focus group is an ideal method to generate research questions for a study because members are generally chosen for their ability to give the researcher insights into specific phenomena. Focus groups are an extremely flexible tool for research purposes and have the capacity to be tailored towards practically any issue or topic and can be conducted in a wide range of contexts with a diverse selection of participants (Stewart et al., 2008). In the focus group for this research, it was intended that the researcher would gain insights into psychosocial risk factors in the offshore oil and gas industry. Furthermore, as quality in qualitative research requires that diversity must be accounted for, the focus group is ideal for generating diversity and variance (Flick, 2007).

3.5.2 Development of focus group questions

The results of the literature review were utilised to develop the questions for the focus group. The focus group took place in Phase 2 of the research. The questions developed for the focus group were open-ended, which allows participants equal opportunity to participate (Smith et al., 2009) and to elaborate and give detailed reports of their experiences (Creswell, 2014), providing a more holistic representation than a traditional questionnaire (Brannen, 2005). See Appendix 6 for a copy of the focus group questions asked to provide relevant information related to answering the research aim and objectives.

3.5.3 Recruitment and sampling procedures

Recruitment followed an eligibility standard of participant selection. The criteria of obtaining a cross-section of the population was due to the standard recommendation that random sampling may not reflect the whole study population (Creswell, 2014). Purposive sampling is described by Creswell (2012) as the intentional selection of participants or location that enables the researcher to understand the phenomenon being studied. The individuals selected by the researcher held specialist understanding, capability and enthusiasm to discuss the phenomenon (Creswell, 2012), as well as the lived experience required to give the researcher insights (van Manen, 1990).

This study recruited Western Australian offshore oil and gas workers with the aim of revealing important insights into the offshore oil and gas working and living environment. Participants were recruited based on their employment position. Members of the focus group included a National

Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) representative, who had knowledge of offshore oil and gas legislation and Australian workplace health and safety. To provide insights into how mental health concerns are managed by onshore oil and gas mining organisations, a representative of the Department of Mines, Industry Regulation and Safety (DMIRS) was present. A Health, Safety, Security and Environment (HSSE) advisor with ongoing employment and an O & M (Offshore and Maintenance Crewing Manager) for a contractor company represented management in the offshore oil and gas industry. One casual worker and one contract worker were present, as well as two permanent employees: a graduate engineer and a permanent employee, both with ongoing employment. It was important to include contract workers so that their experiences could reveal the psychological risk factors of non-permanent work.

There were eight members, which ensured a representative sample of the Western Australian offshore oil and gas industry workforce. For qualitative research methods, Morse (1994) suggests a minimum of six participants, a guideline adhered to in all studies in Mason's (2010) review of 560 qualitative studies. While Creswell's (1998) recommendation of between five to twenty-five participants is more flexible, sample sizes with less than twenty participants facilitate the relationship between the researcher and the participant, at the same time increasing the validity of research in practical settings (Crouch & McKenzie, 2006). Further to this, using a large sample size may not generate the richness and depth that a smaller sample provides and poses a risk in terms of overwhelming the study with large amounts of data (Smith & Osborn, 2008).

The study used a semi-structured interview technique, an approach used to avoid possible limitations on the researcher's attempts to generate an understanding of the perceptions and experiences of participants. Semi-structured interviews allow the participant the opportunity to recount their perception of the experience, enabling the researcher to investigate the phenomenon further (Merriam & Tisdell, 2015).

3.5.4 *Conducting the focus group*

The focus group was conducted in a virtual setting. According to Gaiser (2008), carrying out a focus group online affords the researcher with several advantages, the most obvious being its relatively inexpensive nature. Furthermore, the method can help alleviate participant inhibitions through increased anonymity (Liamputtong, 2011), while at the same time allowing for the uniqueness of personal perspectives together with group commonalities (Murray, 1997). Importantly, Gaiser (2008) points to a reduction in researcher bias due to a more accurate framing of the research topic and the concerns of participants. Members of the virtual focus group are more likely to disclose personal

thoughts, which may lead to higher levels of interaction between group members (Liamputtong, 2011).

Considering that face-to-face group participation can give rise to feelings of conformity pressure, restrictions on interactions between members can occur and affect the quality of the data collected. Members who are unfamiliar with each other have been found to communicate their views unprompted and in an honest manner, whilst also avoiding any form of leadership structure which may be present in pre-existing relationships (Thomas et al., 1995). Finally, virtual focus groups lack the practical restrictions of a face-to-face meeting, meaning that members do not have to travel and can take part from whatever location they are in at the time (Gaiser, 2008).

Participants were encouraged to interact with each other when answering questions, communicating their own experiences and opinions between themselves as well as to the researcher. This ensured that participants' knowledge and understanding were demonstrable in the session and gave insights into the participants' thought processes and the reason for this (Kitzinger, 1995).

3.5.5 *Focus group data analysis*

3.5.5.1 Introduction

Interpretative Phenomenological Analysis (IPA) is especially effective when the researcher is seeking to address 'complexity, process or novelty' (Smith & Osborn, 2008, p.55). As there are limited studies on Australian offshore oil and gas facilities, the study can be described as novel. Familiarising with the data was achieved through reading and rereading the interview transcripts, which can lead to fresh insights (Smith & Osborn, 2008) and to deeper patterns and meanings (Moser & Korstjens, 2018), transferring the participants' experiences onto the researcher (Usher & Jackson, 2017).

3.5.5.2 NVivo analysis

NVivo facilitates the participant to provide complex accounts of their experiences, enabling the researcher to critically analyse the results and thus enriching the discussion and interpretation of results. NVivo is suitable when using interpretative methods to analyse research. Furthermore, it is recommended for studies which utilise semi-structured interviews and for those with a relatively small sample size. NVivo aids the researcher in the classification, categorisation and arrangement of data, which assists in analysing information and identifying emerging themes. The researcher can become more engaged with the study content during analysis, due to the researcher's responsibility of coding the data and identifying themes (Sotiriadou et al., 2014).

Analysis of results was conducted through NVivo, which were then compared with the literature review findings. An initial process of note taking began during the focus group and interviews and continued when they had been completed. Codes were then assigned to the data, where patterns and themes emerged from the content.

Data analysis in qualitative research is an essential measure representing the essence of the phenomenon being studied and requires in-depth and ongoing involvement with the data (Miller, 2003; Usher & Jackson, 2017). A process of taking notes followed the initial reading and rereading, making sure to remain in a state of open-mindedness. According to van Manen (1990), conducting phenomenological analysis requires careful consideration of the themes that define a phenomenon, later described through the writing and rewriting of findings. Once codes were assigned to the data, the researcher looked for patterns and themes in the content.

As Silverman (2011) and Bertrand et al. (1992) note, much is written about how to conduct focus groups, yet literature regarding how to actually analyse focus group data is rather scarce. Focus groups tend to generate large quantities of data. Rabiee (2004) estimates that a one-hour interview can result in the researcher spending up to six hours transcribing the data, which may generate around forty pages. Therefore, reducing data is the first objective (Robson, 1983), achieved through examination and categorising of transcripts.

Transcribing the focus group discussion is the initial part of the data analysis process and generally the most complicated due to the multiple, often overlapping, voices to be heard (Greenwood et al., 2017; Liamputtong, 2011). Familiarisation with the data was achieved firstly through listening to and viewing the whole focus group discussion in its entirety, therefore becoming immersed in the content of the interview overall prior to analysing its parts. The researcher then listened and relistened to each participant's contribution to the discussion, while typing the conversation into a new document for each individual. In the course of this process, significant themes began to emerge. Making a mind map of the transcript contents assisted the researcher in identifying running themes within different conversation streams, and which comments belonged to which participant, enabling the researcher to build up a portrait of each individual and the psychosocial hazards perceived to be major stressors. During this stage, short phrases and themes made themselves visible and formed the basis of the text to be analysed (Rabiee, 2004).

Wilkinson (2011) observes that most focus group research utilises some sort of content analysis. That is, analysing the data and looking for recurring themes within it, namely through a system of coding applied methodically to the focus group transcripts. By identifying commonly occurring words, codes could then be assigned to these words or phrases. Where themes were connecting, for example where participants discussed COVID-19 and its relationship to changed rosters, sub themes were applied under the main theme.

The transcript from Microsoft Teams was reviewed and any grammar or spelling mistakes were corrected by the researcher, a process recommended by Liamputtong (2011) to enable the researcher to familiarise themselves with the data. Each focus group question was analysed separately and a summary of what participants stated during the question 'Is there anything else that you would like to add to the discussion, or anything that you feel was missed?' was also analysed. NVivo gave a word frequency list and word cloud for each of the questions. According to Breen (2006) formally analysing focus group data requires that the researcher provide a summary of the most substantial themes, the most significant quotes and any findings which were unexpected.

3.6 Development of interview questions

The development of the interview questions is described in the next chapter after the results of the focus group data analysis. The extensive review of the literature and focus group discussion formed the basis of the interview questions. The interview questions were semi structured and open-ended, allowing for elaborate retelling of experiences (Creswell, 2014), and comprehensive and inclusive accounts (Brannen, 2005). As stated by Greenwood et al. (2017), combining data analysis methods increases the validity of the study's findings. Participants were also asked to state their employment position, whether they worked for a large (200+ employees) or small (less than 200 employees) company, work status, length of experience in the offshore oil and gas industry and age group.

Considering the findings of the literature review and insights arising from the focus group analysis, the interview questions for the pilot study aimed to address several identified key psychosocial hazards. Because the focus group analysis revealed that COVID-19 restrictions had impacted mental health due to organisational mitigation practices, the first question asked participants about the effects of the pandemic on their mental health. The focus group discussion also provided insights into the stressors associated with the pandemic, which included changed rosters, casualisation and job uncertainty. Therefore, it was necessary to ask participants about their rostered hours of work, including the amount of time in days and weeks spent offshore, and how this impacts their lives. Participants were asked to reveal what they considered as being the main work-related mental health

hazards, and if any of these had resulted in poor physical health as one of the main themes that emerged from the analysis was injuries and concern about mistakes in the work environment.

When attempting to uncover the effect of poor mental health on the safety of the offshore working environment, one of the main themes appeared to be worry about being replaced and encountering stigma associated with poor mental health. In order to investigate this further, the researcher included a question about the impact of mental health hazards on offshore installations when employees take sick leave because of exposure to the hazard. Further questions related to the experience of returning to work after an injury, the economic effects of psychological illness on the employee or the company, the education and support provided by the organisation, management or work organisation factors affecting mental health and environmental factors, such as noise, toxic vapours, climate or ocean conditions that affect mental health when working offshore.

Additionally, there was an exit question, which gave the participant the opportunity to add anything about health hazards, what was done well to manage mental health hazards, and opportunities for improvement in managing employee mental health. Pilot study questions are in Appendix 9.

3.7 Pilot study

3.7.1 Introduction

'Behind every successful piece of completed research stands a pilot study' stated Lackey and Wingate (1998, p. 375). Pilot studies are underutilised, according to Prescott and Soeken (1989) and guidance as to how to conduct them are often overlooked (Lackey & Wingate, 1998), a concern indicated again more recently by Malmqvist et al. (2019).

A pilot study or test is designed to show whether there is a basis for the larger study proposed by the researcher. The aim of the pilot study was to test the effectiveness of interview questions and to ensure methodological rigour and validity (Ismail et al., 2018). The results of the pilot study should reveal the benefits of conducting such research, as well as assess feasibility through revealing factors that may influence a larger study (Polit & Beck, 2010; Prescott & Soeken, 1989; van Ort, 1981). The pilot study may also reveal challenges in the research design (Prescott & Soeken, 1989; van Ort, 1981), providing an opportunity to fine-tune data collection methods (Burns & Grove, 1997).

Another benefit of conducting a pilot study is to familiarise the researcher with the experience of conducting a study, including interacting with participants, immersion in the methodology and familiarising with the instrument or instruments (Van Ort, 1981), which can also be assessed for

validity and reliability (Burns & Grove, 1997). Furthermore, the pilot study can indicate the effectiveness and suitability of the sampling method (Prescott & Soeken, 1989) and whether or not the sample represents the population (Burns & Grove, 1997). Lackey and Wingate's (1998) review of pilot study literature in nursing found an extensive range in number of participants (4-268) in each study.

Interview questions used in the pilot study, and in the main study, were developed based on focus group and literature review findings. One-to-one interviews were conducted via video link when participants were in the offshore leave phase of their working cycle. Transcripts of answers were sent to each interviewee. Checking each transcript ensured accuracy and any changes by participants contributed to information reliability and validity (Ramsook, 2018).

3.7.2 Recruitment and sampling procedures

Pilot study participants were recruited in a similar manner to the focus group members. They were selected based on their employment positions and employment type, in order to gather data that would be representative of the Western Australian offshore oil and gas workforce. This ensured that participants were from the same population as the main study, although the pilot and the main study did not use any of the same participants. This can give insights to the researcher such as availability and accessibility to participants, or participant response and attrition rates (Lackey & Wingate, 1997).

While Treece and Treece (1986) recommend that the sample size for a pilot study should be around 10 percent the size of the main study, Lackey and Wingate (1997) emphasise several factors which may influence the final sample size, such as the cost of conducting the pilot study and how much time the researcher has available. However, as long as the sample is large enough to identify methodological weaknesses, there is no fixed number required for a pilot study (Nieswiadomy, 1993, cited in Lackey & Wingate, 1997).

3.7.3 Pilot study results

A total of 5 participants were included in the pilot study, with 4 being male and one female. Participants were employees who worked in the Australian offshore oil and gas industry and were not identifiable by name or organisation in order to maintain confidentiality. Their work roles included General Service Operator, Principal Subsea Engineer, Graduate Training Engineer and an Operations' Representative. Pilot study participants were asked if they worked for a small or large organisation. A small organisation has less than 200 employees, while a large company has more than 200 employees. All participants stated that they worked for a large company. Four of the pilot study

participants had ongoing employment. Two of the participants worked for an offshore oil and gas contractor company, one worked for an offshore service company, while the remaining participants worked for a large offshore oil and gas production company. One pilot study participant was new to working in the offshore oil and gas industry, 2 had worked in this industry for 11 to 15 years and the remaining participant for 21 to 25 years. The age of the pilot study participants covered a wide range with one being 26-30, one 31-35, two which were 46-50 and one 51-55.

Participants were asked fourteen pilot study questions which were formed from the focus group discussion (Appendix 9). Interviews took between 15 and 45 minutes.

The pilot study participants had minimal experience of a formally diagnosed mental health illness, although several individuals commented on the highly stressful environment they were working in and one participant had taken time off work for stress. Overall, however, there appeared to be a high level of support from both participants' colleagues and supervisors.

3.7.4 *Changes made to the interview questions*

Participants were asked via email for specific feedback regarding the interview questions when they were sent their transcriptions for checking. Pilot study participants did not raise any issues or offer any suggestions for interview question improvements. However, based on the researcher's experience when asking the interview questions, the following changes were made to improve the understandability of the interview questions and to facilitate the achievement of the research aim and objectives, while improving validity and reliability (Cho & Trent, 2006; Ramsook, 2018).

When asked the question '*Have you ever had a psychological illness or suffered from poor mental health?*', it was felt by the researcher that participants were uncomfortable in answering; for example, responding with a firm '*No*' with no elaboration. Participant #3 stated that there was a period where the participant was unable to fully carry out their duties to the best of their abilities and had taken leave for stress, yet did state that they had never suffered from a psychological illness or poor mental health. This indicated that participants are likely to have felt some level of anxiety about revealing such personal information. People working in the offshore oil and gas industry identify stress as being different to having a mental health issue. The medical screening process for certifying someone fit to work offshore would screen out people with a mental health illness and not allow them to work offshore. However, people may become stressed at times due to work, family, or other causes, but can still work offshore if they are, or have been, stressed and are given leave to recover from stress. This identified the need to have a separate question on stress.

Before the question *'Have you ever had a psychological illness or suffered from poor mental health?'*, a simple statement using forgiving language was added: 'Psychological illness or poor mental health is a common outcome of workplace stress'. Social desirability bias, a type of response bias, which can occur when participants are answering sensitive questions, may have shaped responses to the question, as presenting a socially desirable image of themselves makes opening up about a sensitive issue particularly difficult. The question may not necessarily have the potential of resulting in adverse outcomes for the individual, yet their response may still be considered socially undesirable and invasive (Charles & Dattalo, 2018). The issue of social desirability when responding to interview questions therefore raises the risk of measurement error (Charles & Dattalo, 2018; Groves et al., 2009). To combat this issue, several authors recommend the use of forgiving language (Charles & Dattalo, 2018; Groves et al., 2009; Näher & Krumpal, 2011). Another published suggestion is ensuring that participants are fully aware of the anonymity of their answers and subsequent data, and a reminder of this at the start of the interview would resolve this (Charles & Dattalo, 2018). Additionally, Krumpal (2013) states that the issue of asking a sensitive question can be addressed by placing it within a considerately designed context, where general questions about the phenomena are asked first (Charles & Dattalo, 2018). In this study, questions regarding rosters, hours and management factors are asked first because they are not as intrusive. By gradually increasing the sensitivity of questions, it is expected that participants will experience a reduction in feelings of defensiveness. Another strategy is to phrase interview questions in a compassionate manner, making use of 'forgiving language' (Charles & Dattalo, 2018, p. 577), which provides respondents with opportunities to answer more honestly (Groves et al., 2009).

The question on economics, to provide information related to research objective 4, which was to identify the negative economic effects for employers and employees due to psychosocial illnesses, was not answered unless the participant answered yes to having a mental health issue, so it was decided that the question would be simplified by removing the question that followed

'Have you ever had a psychological illness or suffered from poor mental health?' from *If 'Yes':*

i) Has having a psychological illness or poor mental health had an effect on you financially? If 'Yes':

ii) Do you know of any economic effects on the organisation from yourself or a colleague having a psychological illness or poor mental health? If 'Yes':

iii) How has this affected the organisation? to

'Have there been any economic effects on your employer or its employees from a worker having poor mental health? If 'yes', describe the effects' to ensure that there was an opportunity to gather data regarding any economic affects that a worker having poor mental health may have on the

organisation, if the respondent did not answer yes to having had a psychological illness or suffered from poor mental health.

During the pilot study it was identified that some organisations may not provide mental health education, or employees may not be aware of this provision, so the question ‘*What mental health education does your employer provide?*’ was amended to ‘*Does your employer provide mental health education? If yes, please describe the education provided*’. For the same reason, ‘*What strategies does your employer implement to support employee mental health?*’ was revised to ‘*Does your employer implement any other strategies for mental health promotion or support? If yes, please describe these strategies*’. This revision enabled other mental health promotion strategies provided by the employer that were not education to also be described during the interview.

‘*What interventions or approaches does the company have to develop employee resilience*’ resulted in little discussion, with one participant requiring further clarification of the question’s meaning. It was therefore decided that an explanation of resilience would be provided after the question: ‘*Resilience is the capacity of a person to recover quickly from difficult situations through having good problem-solving skills that enable the person to cope when there are difficulties.*’

There were no other changes identified that needed to be made to ensure that the interview participants understood each question and that that information related to the research aim and objectives could all be obtained from the interview question answers.

3.8 Interviews

3.8.1 Introduction

Interviews aim to discover the varying differences in people and are the most obvious choice for collecting data in phenomenological research (Patton, 1990). They contribute richness to data (Tashakkori & Teddlie, 2010) by providing the researcher with a comprehensive and contextual account of data based on the feelings and experiences of participants or on information which comes from interviewing individuals with specialist or privileged knowledge (Ramsook, 2018). Randall and Phoenix (2009) state that the qualitative interview gives a larger and more layered ‘slice’ (p. 136) of insight into participants’ lives than quantitative research can provide.

3.8.2 Recruitment and sampling procedures

For the interviews, participants were recruited via snowball sampling, a method that increases trustworthiness (Ramsook, 2018), together with a participant recruitment flyer, which was sent to potential target group participants via email. A flyer was sent to the Maritime Union of Australia (MUA), Western Australia Branch, who featured the content within an article in the 12 August 2022 issue of Offshore Updates on the MUA website. The aim was to target potential participants from the offshore oil and gas sector. This flyer stated the aims and objectives of the study and requested that potential participants contact the researcher to express their interest in being a part of the study. Please see a copy of this flyer in Appendix 19. Snowball sampling was also utilised for this study as the participants interviewed were asked to pass the details of the study to colleagues that they considered likely to be interested in taking part. A LinkedIn post was also created.

3.8.3 Interview technique

The researcher used the same interview process as in the pilot study, utilising one-to-one interviews conducted via video link during the offshore leave phase of participants' work cycle. Proposed interview times were based on the amount of time participants took to complete their interview in the pilot study. After the interviews, transcripts were sent to each participant to check and send back. Like the focus group and pilot study, these transcript checks ensured accuracy and contributed towards the reliability and validity of information.

The number of interviews were not predetermined as interviews were conducted until data saturation was achieved, which was achieved after 29 participants were interviewed. This threshold was decided once no new themes were emerging when the data was analysed.

3.8.4 Analysis of interview data

The interview data was analysed using NVivo. The process of analysis for the interview data was identical to that of the analysis for the focus group data. Notes were made by the researcher and then codes were assigned, allowing for the emergence of themes and patterns within the data.

3.9 Reliability and validity

Reliability refers to the consistency or permanence of a measuring method (Long & Johnson, 2000), while validity is described as the extent to which the method measures what it is supposed to measure, or the degree of evidence supporting the assumption that the instrument is truly measuring the concept

it claims to (Polit & Beck, 2010). Participants checked their transcripts to ensure data reliability and validity (Ramsook, 2018).

Ensuring credibility in qualitative research is vital, particularly because it has been the subject of denigration over the years (Cho & Trent, 2006). Concerns have been raised around the validity of qualitative research methods (Cho & Trent, 2006) due to the lack of statistical application on the data, therefore the researcher must absorb alternative techniques for ensuring 'trustworthiness' (Noble & Smith, 2015, p. 34) and rigour (Galdas, 2017) into the research design. This is a point Morse et al. (2002) also emphasise strongly, claiming that reliability and validity should remain the responsibility of the researcher during methodology design and implementation and during data analysis rather than the obligation of external assessors.

Although phenomenology does not utilise quantifiable data, researchers have ensured that reliability and validity standards are still met (Usher & Jackson, 2014). Reliability and validity are the two main constructs for achieving rigour (Morse et al., 2002) and can be achieved in several ways. Morse et al. (2002) recommend checking for biases that may have affected results.

Interpretative Phenomenological Analysis (IPA) is considered complete when the findings have been written up (Smith et al., 2009). This process will also grant the researcher further opportunity to understand the perceptions of the participants and any additional themes that may emerge from the writing up of research results (Smith & Osborn, 2008). During the writing up of results, it is recommended that although it is important to try and limit researcher bias, each interpreter has their own understanding of what transpires through the text (Geanellos, 1998, cited in Usher & Jackson, 2017).

3.9.1 *Content validity*

Content validity is a means of guaranteeing that measures represent the concept as the researcher defines it. To assess content validity, Drost (2011) advises that the researcher seeks the guidance of experts in the field. The thorough literature review and focus group interviews provided content validity through the identification of a comprehensive range of factors underpinning the research problem under investigation. This then enabled the construction of tools based on a systematic and theoretical rationale. Consultation with industry experts through the focus group gave direction and guidance to the researcher when seeking to ensure that the instruments of the study were fully representative of the domain (Bollen, 1989).

3.9.2 *Face validity*

Face validity is a subjective judgement on how well a construct can be operationalised, and it is due to this personal subjectivity that face validity can be seen as a weak type of content validity (Drost, 2011). To have face validity, questions should measure what they intend to measure (Leininger, 1985). The pilot study questions had high face validity as the answer was not open to interpretation.

3.9.3 *Internal validity*

Internal validity refers to the level of certainty to which it can be said that a certain variable caused a specific outcome and is an important aspect of a study which determines to find a causal relationship. In an interview setting, participants are able to authorize their responses, unlike the more limited response options that a Likert scale survey or questionnaire would offer (Bickman & Rog, 2008).

3.9.4 *Transferability*

Although it is widely accepted that each qualitative study's findings are unique to the individual experiences of participants, the context of the study and the phenomena under investigation, the study results can still be generalised in some way to another context or environment (Ramsook, 2018) so that another researcher may investigate the phenomena in a slightly different setting (Patton, 1990). For Galdas (2017), a major concern would be if the results of the study were not able to be transferred beyond the sample used. This can be achieved through the researcher providing enough detail regarding the context, method, results and conclusions so that the study may be confidently replicated (Creswell, 2012; Moustakas, 1994). Detailing the study in enough depth to allow researchers to replicate it also adds to the dependability of the research (Ramsook, 2018).

This study can be transferred to other contexts and also other samples, for example other isolated or extreme environments such as offshore wind facilities, Arctic or Antarctic stations, or space stations and space travel in general.

3.9.5 *Credibility and trustworthiness*

The process of validating participants' responses is achieved through returning to participants to check the researcher's interpretation of results for accuracy, and that they resonate with the experiences of respondents. Member checking requires that the analysed data is valid and a true portrayal of the phenomenon the study aims to measure, which is achieved through participant invitation to review and comment on their interview transcript (Birt et al., 2016; Long & Johnson, 2000), adding to the study's credibility (Ramsook, 2018). Maintenance of credibility was achieved

through recording of the focus group and interviews and transcription of audio files, which participants were asked to check before analysis began. De Witt and Ploeg's (2006) concept of openness in their framework for measuring rigour in qualitative research can be likened to the self-checking recommended by several authors.

In Cho and Trent's (2006) framework, four out of five stages recommend member checking, pointing to it as an ongoing process for ensuring validity in qualitative research. Likewise, Cypress (2017) stresses that rigour must be inherent in the research design rather than being assessed after the study has taken place. De Witt and Ploeg's (2006) balanced integration suggest the interweaving of philosophical theories into the research methodology, while maintaining an equilibrium between the concepts and participants' articulation of their experiences.

Sandelowski (1993) makes further recommendations to ensure credibility in qualitative research, such as continued critical and reflective self-checking for researcher biases. Acknowledging methodological biases and continually reflecting on the analysis process demonstrates clarity of thought and ensures a satisfactory level of depth, contributing towards reflexivity in the study (Ramsook, 2018). While the researcher is generally required to become heavily engaged with the data in qualitative research (Polit & Beck, 2010), it is important to maintain clear a separation of researcher and study. Galdas (2017) proposes that demonstration of researcher reflection and transparency is just as important. Keeping a clear and precise record of researcher decisions can aid the process of establishing trustworthiness (Long & Johnson, 2000; Sandelowski, 1993).

3.10 Ethical considerations

Prior to the focus group session, the pilot study and the interviews, the research proposal was prepared and approval was gained by the Human Research Ethics Committee (HREC). The pilot study was included in the application for ethics approval through the Human Research Ethics Committee (HREC). This is in line with Lackey and Wingate's (1997) suggestion of including plans for the pilot study in the original research proposal. The authors make further recommendations of granting pilot study participants anonymity and confidentiality, as in the main study. The study used purposive and snowball sampling methods, adding to the trustworthiness criteria (Ramsook, 2018). Ethics approval was granted for interview questions.

Participants were required to sign a form which indicated consent before the focus group and interviews took place. It was explained to participants that they would retain anonymity throughout

the study, and that they may exercise their right to refrain from answering a particular question. In addition, the participants retained the right to withdraw from the study at any time.

3.11 Methodology limitations

During the focus group, time constraints were a limitation to collecting data for each of the questions for every participant. This limitation was overcome by including all relevant unanswered focus group questions in each of the returned transcripts and asking the participant to add any comments when it was sent back to them for checking. Participants were also asked if they wanted to add anything they felt was important and that they thought may have been missed.

3.12 Chapter summary

Using Interpretative Phenomenological Analysis in this study was ideal for revealing the lived experiences of participants who worked in the Western Australian offshore oil and gas industry. The literature review as a starting point assisted in beginning the process of indicating firstly what gaps there are in current literature and secondly the psychosocial risk factors and hazards that present themselves to offshore workers, miners, isolated workers and fly-in-fly-out (FIFO) employees. The focus group identified the current concerns of offshore oil and gas workers and helped to form the interview questions for the pilot study and main study. The pilot study ensured that the main study was robust and valid and the use of qualitative data software analysis program NVivo allowed the participants to communicate their own accounts of their experiences, aiding accuracy and richness in the researcher's findings and conclusions.

The following section introduces the focus group results and discusses the findings from the analysis.

4. FOCUS GROUP RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results of the focus group, demographic information of participants, responses to questions about psychosocial risk hazards and control measures in the Western Australian oil and gas industry. The focus group results answer the aims and objectives of the research and forms the basis of the interview questions for the pilot study. NVivo analysis enabled the researcher to create and assign codes and sub codes to the transcripts in order to reveal themes. The word clouds produced for each question showed the most frequent words mentioned in response to each question and significant quotes that are included in the text aim to demonstrate the true experience and feelings of offshore employees. Confidentiality is maintained by assigning the participants numbers 1-8. The chapter firstly presents demographic information for the participants.

4.2 Demographic information

There were 8 participants in the focus group discussion. Representation of management in the offshore oil and gas industry was provided by participant #1, a Health, Safety, Security and Environment (HSSE) advisor who had ongoing employment. Participant #2 was an Offshore and Maintenance (O&M) crewing manager who managed the crewing for an offshore oil and gas contractor organisation. Participant #3 was a representative from The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), who had knowledge of offshore oil and gas legislation and Australian workplace health and safety. Participant #4 was an offshore oil and gas contractor employee who worked on a casual basis, whilst participant #5 was a graduate engineer with ongoing employment. Participant #6 was a representative of the Department of Mines, Industry Regulation and Safety (DMIRS), who gave insight into how onshore oil and gas mining organisations manage mental health concerns. Participant #7 was an offshore oil and gas contractor worker with ongoing employment. The contract workers were included with the intent of providing insights into the less permanent nature of this type of work. Finally, participant #8 was a permanent employee of an offshore oil and gas service company. One participant was female and the remaining 7 participants were male.

4.3 Results of focus group data analysis

4.3.1 *Management and organisational practices*

The first question ‘*In your experience are there any management practices or work organization practices that affect mining industry employees’ mental health? If so please explain*’ was formulated with the intention of answering research objective 1, which was to communicate with offshore oil and gas employees to identify perceived work-related mental health hazards and causes.

Analysis of the first question showed that rosters were a major theme which affected the mental health of employees. One participant shared that some employees were working 26 days offshore with 9 days off onshore, and another stated some workers were working 5 weeks on and 5 weeks off, but during those 5 weeks off they would sometimes receive calls stating that they were required to return to work ‘*for a couple of weeks*’ (participant 5). There were frustrations at the extending of rosters due to COVID-19, with one stating that they had moved from a 3-week to a 4-week roster. This finding is in line with NOPSEMA’S (2020) misgivings regarding the introduction of modified rosters in response to the pandemic. This follows earlier quarantine requirements for offshore workers and raised concerns about the negative effects on mental health such as fatigue, psychological issues such as depression and anxiety, increased psychosocial hazards to employees and their families and heightened risk of injury. Participant #1 recently had a roster that entailed working 8 weeks offshore followed by 8 days onshore leave, before returning to work for another 8 weeks offshore. This schedule provided the participant with minimal time to spend with family and therefore severely impacted their work-home life. Working and living away from home for long periods has been found by other researchers to be a significant negative factor in working offshore (Riethmeister et al., 2016). There are also effects beyond workers’ absence from home and family, such as difficulties adapting back into family life (Mette et al., 2019) as well as fatigue (Parker et al., 2018), disruption to sleep cycles (Parkes et al., 2005) and the need for a recovery period when returning home (Parker et al., 2018).

Focus group participants felt that COVID-19 had had a major impact on job continuity and job certainty, where concerns were raised around precarious work arrangements and their potential to act as barriers to employees reporting psychosocial hazards that in turn can undermine mental wellbeing. According to Meyer et al. (2021), job insecurity threatens conditional

resources invested towards maintaining job security, increasing the risk of further losses of resources during the COVID-19 pandemic. However, Hughes and Fairley (2021) point to the successful and well-received operationalisation of the Employee Assistance Program (EAP) in response to the pandemic through the adoption of virtual platforms for communicating for remote health care personnel. These included Zoom for meetings, a crisis hotline, video and telephone counselling, identification of at-risk employees by management and self-care text messaging.

Role clarity was another theme that emerged from question 1. Participant #6 identified low levels of role clarity as a contributor towards psychosocial distress and participant #3 agreed with this. Poor internet coverage was identified by participants #2, #4 and #5 as being an issue. Henry et al. (2013), Mette et al. (2017) and Tynan et al. (2016) all identify adequate coverage for communication services as being vital for providing mental health support, while Sampson and Ellis (2021) found a significant number of participants in their study referred to internet access as being a major factor in reducing anxiety and depression.

Although high job demands have been implicated in poorer mental health for employees (Nielsen et al., 2013), NOPSEMA (2021a) suggest that demands may not be a particular cause for concern as such, and can even contribute towards individual and personal growth, however when coupled with low job resources may result in stressors which become overwhelming for the employee (NOPSEMA, 2021a). Job demands are able to be counteracted through a higher level of command and control over their roles (Karasek, 1979). The following figure shows the frequency of words and phrases in response to question 1:

Figure 4.1

Word Cloud Frequency for management and organisational practices



The word cloud generated by the word frequency query showed that COVID, length of rosters, job certainty and casualisation were the main concerns of participants. Based on the responses for question 1, questions which provided insight into the effect of the COVID-19 pandemic and rostered hours of work were developed for the pilot study. A question relating to casualisation of offshore work employment was also developed due to the results of the analysis. A further question was developed regarding management or work organisation factors that affect mental health.

4.3.2 Psychosocial obstacles in return-to-work

When participants were asked '*Do you know of any psychosocial obstacles for employees when returning to work following a work-related injury or ill health and if so, how do you think that these can these be mitigated?*' the aim was to answer Objective 3: 'Observe how offshore oil and gas employees' mental health needs are considered in return-to-work programs following a work-related injury or illness'. Participants discussed the main barriers in returning to work, which, in line with current literature, were fear of re-injury (participant #7) (Sullivan et al., 2005, cited in Dembe et al., 2007), the difficulty of getting back into the swing of the work environment and loss of support (participant #2). Employees may be experiencing negative psychological symptoms such as depression, anger and frustration, while injured and a complex return to work process can further worsen these factors (Eggert, 2010). To lessen the risk of re-injury, Dembe et al. (2007) recommend a gradual return to the work environment, which echoes

participant #8's statement that employees would generally be allocated light duties or office work until they are declared medically fit to work in their usual environment. However, this can result in job dissatisfaction due to reduced work options (Beardwood et al., 2005) and feelings of being devalued outside of usual roles (Sager & James, 2005). Furthermore, being allocated unsuitable alternative roles is likely to result in lower return to work rates and a higher risk of return-to-work programs failing (Wyatt et al., 2017). It can also be challenging for employers to find a substitute role for workers, especially during economic downturns and particularly considering the high remuneration of FIFO work (Henry et al., 2013).

Likewise, employees suffering from stress or fatigue should experience a more graduated return to work, a process which appears to be utilised in the case of participant #2, who stated that employees may be given the opportunity to return to their accommodation to rest or have some breathing space. Participant #2 gave insight into the issues facing employees when returning to the offshore environment:

'Returning to 12-hour work days, back into work jargon again, obviously missing family and that support that they had at home while they were recovering, whether it be physio, GP, and I think that that's a big one I guess, and depending on how long they were away for and I think possibly things that could assist could be doing a bit of a hand over in advance over the phone with team members, trying to catch up and just overall prepared to go back into that work environment'.

Consistent with Sager and James' (2005) statement that the rehabilitation process is often a lonely one for employees, the above account by participant #2 points to the negative impact of experiencing a reduction in or loss of support, whether that is from the worker's GP, physiotherapist or family. As family and work support are crucial for injured workers, particularly for offshore workers experiencing poor mental health (Battams et al., 2014), a lack or loss of this support can contribute towards stress and depression (Eggert, 2010).

Participant #5 added further:

'Overcoming the fear of a recurrence of the injury, for example: someone injured due to a dropped object, or fall from height may be more hesitant to perform the same role due to a lack of confidence, or faith in equipment, due to the injury'.

Work as a factor of identity was an interesting point raised by participant #8, who stated:

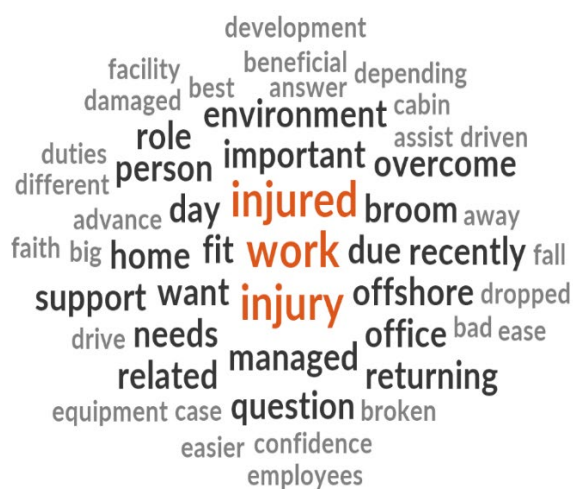
'If I was injured and went back to work part of my way to find myself is through my work, so would want to go back to work and would want to be back in the work environment, and that would probably be a beneficial thing for me to do if I'd been injured. That happened to me quite recently through a different thing, but going back to it was quite important to me'.

Many authors have proposed that work forms part of our identity (most notably, Marx, 1859, who argued that work is a fundamental part of being human (cited in Warren, 2015); Weber, who considered a person was not whole unless they were at work, and Hughes, who stated that work forms one of the most important parts of self and social identity (Warren, 2015).

Gini (1998) argues that through work people become themselves and discover their identity, which is formed by what they do for a living. Bothma et al. (2014) propose that occupational identity is shaped over time, particularly within roles where acquiring the skills and expertise are not without difficulty, and losing occupational identity can result in anxiety and depression (Brown, 2004; Peteet, 2000, cited in Bothma et al., 2014). Furthermore, workers who are injured can show reluctance towards retraining when new work roles are not closely associated with previous work roles due to the identity they find through their work (Murray, 2007). Worse still, higher levels of biological markers related to stress have been found in those who have been re-employed into unsatisfactory or unsuitable jobs than in those who have remained unemployed (McKinlay, 2018).

Figure 4.2

Word Cloud Frequency for obstacles in return-to-work



The word cloud generated by the word frequency query showed that a fear of re-injury was a major theme, as well as reintegration into the work environment and loss of employment and loss of work identity. In order to answer research objective 3, a question relating to mental health considerations during post-injury return to work was developed based on the analysis of responses to this question.

4.3.3 *Types and causes of mental health stressors*

The focus group question *‘What do you think are the main types of, and causes of, mental health stressors for offshore oil and gas workers? What risk control measures do employers use for these mental health stressors and how effective do you think they are?’* partly provided insights towards answering objective 1: *communicate with offshore oil and gas employees to identify perceived work-related mental health hazards and causes* and also objective 2: *Assess systems of work, employer provided mental health education and support, and other strategies used in the offshore oil and gas industry to support employee mental health*. Making mistakes were a common concern, with participant #5 stating:

‘I think when I was sent offshore, my biggest fear I guess, was making a mistake. I think one of the more important, most important, ways of addressing that is the Stop Job Authority that everyone has. So you're expected to look out for yourself and look out for everyone else. And if people can see that you're about to do something you shouldn't, they would take you aside and have that discussion’.

Participant #8 also highlighted the perceived pressure to get a task finished and how it could be a factor in causing accidents:

‘I would argue that possibly, controversially, that a lot of the perceived pressure, which I should point out which is real, is absolutely an important part of how a lot of accidents happen. People perceive that they have to get their job done. They don't want to speak up, they want to get after it. They want to be as fast as they can, as quick as they can. They don't realize we really, that's secondary people not getting hurt, but that comes from lump sum contracts. The companies are letting lump sum contracts and the contractors that bid on them as cheap as possible and the faster they go the more money they make’.

While participant #5 identified a solution to the prevention of mistakes occurring, participant #1 pointed out that mistakes were a natural part of being human, and are likely to occur even in optimum conditions. However, the participant stated that one company had been successful in recognising this and subsequently reframing the discussion with the aim of ensuring that when mistakes are inevitably made, the failure's consequences are minimised and do not result in personal injury.

Shifts were also a frequently occurring word in the analysis. Participant #5 stated that they were now faced with *‘longer hours, longer shifts’*. Fatigue and burnout can be caused by shift rotations, shift patterns and the duration of swings (NOPSEMA, 2021a). Changing shifts after

a short time offshore was identified by Parkes (1993) to cause a reduction in alertness for up to several days afterwards. In fact, the low levels of alertness were comparable with levels that were commonly seen at the end of the night shift phase.

The following diagram indicates the most commonly identified themes in answering this question.

Figure 4.3

Word Cloud Frequency for Types and Causes of Mental Health Stressors



The word cloud generated by the word frequency query showed that shifts and mistakes were amongst the main stressors for offshore oil and gas employees. Responses indicated that a major stressor was the fear of making mistakes, therefore this question was included in the pilot study, with the aim of addressing objective 1.

4.3.4 Impact of poor mental health on health and safety

If employees have poor mental health, how does this impact on offshore employees' health and their safety? aimed to answer objective 5 of the research: *identify health and safety hazards in regard to poor mental health and its impacts on offshore installations.*

Participants discussed how poor mental health jeopardises the health and safety of everyone. Participant #5 stressed that a lack of focus on their job can result in exposing themselves and others to hazards. As fatigue is associated with diminished attention (Landon et al., 2019), it is

important for employees who are accustomed to long and changing shifts to be mindful of any changes in mental health. However, in a largely male environment and where help-seeking for mental health issues may be seen as weak (Henry et al., 2013), stigma and low levels of social support still appear to be preventing employees from accessing mental health support (Gardner et al., 2018). Nevertheless, there appears to have been a stronger focus on mental health and the stigma associated with it in the past few years. According to participant #7:

There is still the “I’m okay, don’t worry”, but with the literature and presentations on board, generally we do tend to look out for each other more, and help our mates if we see that they are a bit down. Added to the fact that they know that they can talk to someone in confidence. I think at our place of work, the old adage of “toughen up” has been replaced with RUOK’.

Figure 4.4

Word Cloud Frequency for Impact of poor mental health on health and safety



The word cloud generated by the word frequency query showed that mental health presentations, reducing stigma, self-awareness, focus, physical exercise and endangering others were the main themes. Based on the answers given for this question, questions were designed to provide insight into how stigma has been reduced through the provision of mental health literature and how presentations and awareness-raising can improve mental wellbeing, which aimed to address objective 5.

4.3.5 Economic effects of poor mental health

The results of the analysis for the question ‘Do you know of any economic effects on organizations when employees have to deal with psychosocial issues and/or poor mental health? If so, what are the economic effects?’ was devised in order to answer objective 4: identify the negative economic effects for employers and employees due to psychosocial

illnesses. However, this resulted in less discussion. The only participant who answered this was participant #5, who stated:

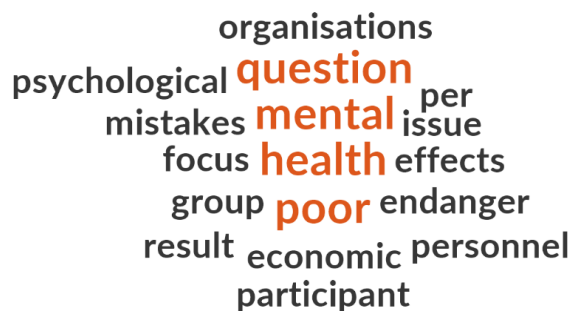
‘Poor mental health can result in mistakes, and endanger other personnel’

Greden et al. (2019) describe the economic effects of mental health issues in the workplace as “complex and disturbing” (p. 5). Grazier (2019) continues this discussion further, detailing the multitude of costs related just to depression alone; screening for and treating depression, providing support to those with depression, absenteeism and long-term or ongoing costs. While the economic cost is a challenge to obtain, it is thought that the total costs associated with depression are underestimated.

As discussed by participants #1 and #3 in response to question 7, there are methods that organisations can use in order to prevent poor mental health. Furthermore, screening and recognition of depression by workplaces are possible and companies can implement evidence-informed programs to help reduce the economic costs of depression.

Figure 4.5

Word Cloud Frequency for Economic effects of poor mental health



The word cloud generated by the word frequency query showed that mistakes and endangerment of others were the main themes arising from this question.

4.3.6 Economic effects of good mental health

Analysis of the question ‘*what do you think are the economic effects of having good employee mental health practices implemented by the company?*’ relates to objective 4: *identify the negative economic effects for employers and employees due to psychosocial illnesses* and provided a mixed response, with participant #5 believing that it could be both costly and beneficial to employers, drawing attention to the initial and ongoing costs of program

implementation to organisations, as well as the changes required to existing rosters. However, it is well-established that while employee mental health programs have direct costs, such as screening, therapy and medication, the indirect costs of poor mental health such as absenteeism, inability to focus or loss of production far outweigh these (Eggert, 2010; Grazier, 2019; Iijima et al., 2013; KPMG & Mental Health Australia, 2018). This was recognized by the participant, who stated that good mental health among employees equated to a lower likelihood of mistakes, lower risk and less need for supervision of employees.

Figure 4.6

Word Cloud Frequency for economic effects of good mental health



The word cloud generated by the word frequency query showed that good mental health would lower the likelihood of making mistakes, leading to less need for supervision. A question about how psychological illness may have affected the participant or their company economically was developed to answer research Objective 4 based on the responses to this question and the previous question.

4.3.7 Promotion of positive mental health practices

Regarding best practice, what do you find gives the best outcomes for promoting positive mental health for employees in the workplace? aimed to answer objective 2: *Assess systems of work, employer provided mental health education and support, and other strategies used in the offshore oil and gas industry to support employee mental health.*

Participant #5 stressed the importance of having constant messaging from the top down, of workers having a clear view of higher-level personnel utilising the facilities that aim to improve

mental health. However, as participant #2 noted, attaining mental wellness remains harder to achieve than physical health, due to the discrepancy between acceptability around achieving and maintaining physical health and mental health. While attaining physical health appears simplistic in some sense in that:

'Going to the gym every day is good for your physical wellness, but maybe something it's about, you know, going to the psychologist every day might be because you have issues, not because maybe you just want to vent about this annoying person in the cabin'.

It was however acknowledged that offshore work held some inherent risks that simply cannot be avoided. Participant #3 pointed to the larger oil and gas companies' use of psychometric testing for employees, which aims to identify those who are more likely to be at risk of adverse mental health symptoms when faced with psychosocial hazards. As Parkes (2005) points out, offshore workers can spend nearly half the year away from home and so absence from home and family life is not something that can be protected against (participant #3). This viewpoint was echoed by participant #8, who added that some aspects of the work needed to be accepted as part of the job, and if workers need a psychologist for inherent work factors, then maybe they were not suited to the job or the environment. This is partly down to the employer, they stated, who is responsible for selecting suitable employees:

'If the work environment is such that it's causing you to have a lot of people who need to see a psych inherently because of what they are doing as opposed to an external factor then that's probably a failure in the sense that we haven't done it right. You've got the wrong people. You got the wrong work systems. You've got the wrong environment, the wrong people, the wrong management or whatever it may be that's influencing those people to need to have a psych on site'.

Participant #3 echoed the earlier opinion of participant #2, in thinking that a strong relationship between the employer and their employee was a vital component of best practice. However, irregular employment together with temporary work status was found by Hahn et al. (2021) to be associated with lower levels of mental wellbeing and irregular schedules may point to a disparity between a lack of employee control over working and non-working schedules, suggesting poor employer-employee power relationships, which conveys uncertainty and insecurity onto employees.

Participant #1 believed that multiple avenues were required to tackle the issue of poor mental health in offshore workers. Pescud et al. (2015) state that making progress in health promotion and wellbeing is more likely if a multidimensional strategy is utilised, along with a workplace culture that is supportive of the psychosocial requirements of employees as well as the

opportunity to develop interrelationships with personnel at various levels (Dickson-Swift et al., 2014).

In line with participant #3's earlier comment, it was suggested that psychometric testing to filter out those who are more at risk from inherent workplace stressors such as living away from home for long periods could be widely utilised. Psychometric testing is the juncture of business and psychology, where the latter provides an instrument for measuring employee suitability for a position in a valid and accurate way (Caska, 2019). For the employee, psychometric testing may appear drastic, particularly considering the consequences of test 'failure', such as negative emotional responses and dissuasion from applying for future promotions. On the other hand, testing can capture scope of emotional intelligence, coping skills and even resilience, which can be beneficial for career progression (Caska, 2019).

Additionally, having a psychologist or wellness coach on site, peer support, access to gyms and promotion of physical exercise are all useful approaches. Frequent last-minute changes to rosters were identified as being a frustration of offshore work, particularly in recent times. Participant #8 referred to the difficulty of added work days on top of the agreed time spent offshore:

'If you're going out for a two-day job and it became seven days, man it was painful right? It was really, really, really hard. It's only like five more days and I did three months a couple of times you know, you get home a bit frazzled'.

Mindset was identified as an important factor in coping with last-minute changes in rosters (NOPSEMA, 2021a), and participant #8 believed that mental resilience may be lacking in employees. Part of this resilience appears to be building up psychological adaptability and endurance in response to these unexpected negative events, they believed. Participant #1 agreed, stating that being delayed offshore by another week was like 'resetting Christmas', stressing the difficulty of adapting to sudden, namely negative, changes. Participant #8 then suggested that building resilience should be part of the toolkit. Employee resilience has been found to be a cornerstone of the adaptability of an organisation, particularly in uncertain or unpredictable business settings (Tonkin et al., 2018). Participant #7 added:

'I think a lot of the problems at the moment, not stemming from how the roster is, it's more how the rosters are going with COVID, how we're having to cope with COVID, going through with this, where people are having to stay behind or they're being asked

to come back because so and so can't get in or whatever you know, because you have to keep those skills up and also for the people that can't get in there, it's that mental health, the mental issues - they're upset that they can't get there. What's going to happen to my job'?

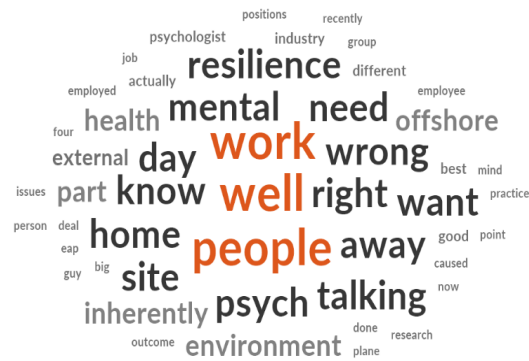
Tonkin et al. (2018) join the growing call (Kuntz et al., 2016; Luthans et al., 2006, cited in Tonkin et al., 2018) for the need for organisations to highlight how essential it is for employees to be able to cope with the psychological effects of constant changes, whilst also investing in interventions or projects which aim to develop employee resilience. However, the authors note, this should be a shared responsibility between the employer and the employee, where both should respond positively to changes with resilience strategies developed through wellbeing interventions, as wellbeing shares a beneficial relationship with both workforce productivity and personal resilience (Wood & De Menezes, 2010). Employees can take proactive steps to improve resilience in response to factors specific to working in an ocean environment (Sampson & Ellis, 2021). Organisations should aim to establish and encourage a culture that supports wellbeing and supports resilience in employees with a view to developing a shared culture of organisational resiliency (Sampson & Ellis, 2021).

Even when offshore employees have returned home, they may still be at risk of psychological distress. Fatigue when back onshore can persist, particularly for night shift workers, and can be significant enough to dampen the enjoyment of being back at home (Parker et al., 2018). A feeling of disconnection between employees and their families can arise from an irregular circadian rhythm and a feeling of having been out of the loop, while still attempting to meet the expectations of partners and families (Parkes et al., 2005).

Recently, due to COVID-19 border restrictions, some employees have been unable to work and fear losing their employment. In the case of participant #4, relevant up-to-date skills and qualifications were unable to be maintained. Contractors in particular are at risk of job uncertainty and job loss and find this a significant source of stress (McKinlay, 2018) as stated by participant #4, who asserted several times that casualisation should give way to permanency, as permanent contracts would improve mental wellbeing (Sampson & Ellis, 2021). Employment which is precarious can consist of several factors, such as working for numerous employers, unconventional or irregular work schedules, hazardous working conditions or financial instability and can adversely affect mental health (Premji, 2018).

Figure 4.7

Word Cloud Frequency for promotion of positive mental health practices



The word cloud generated by the word frequency query showed that job suitability, employee resilience and adaptability, providing consistent messaging and utilising a multi-dimensional approach to mental wellness were the primary themes that emerged in attempting to answer objective 2. A question was developed in order to investigate any organisational approaches or interventions that aim to build resilience in employees. As it emerged that a multifaceted approach was important to address employee mental wellbeing, multidimensional was added to an already formulated question from the word cloud in Figure 4.7 (*‘What kind of mental health education and support does your employer provide and what multidimensional strategies do they implement to support employee mental health?’*).

4.3.8 Opportunities for improvement

‘Where do you think that there are opportunities for improvement in promoting positive mental health practices for contractors and workers with ongoing employment in the offshore oil and gas industry?’ aimed to answer research objective 2: *Assess systems of work, employer provided mental health education and support, and other strategies used in the offshore oil and gas industry to support employee mental health.*

It was generally agreed that things had started to change towards a more acceptable view of mental health and wellbeing (participants #2, #7). As participant #1 expressed earlier in the discussion, social support between colleagues has increased due to the literature and presentations around mental wellbeing. However, as stigma and lack of support is still preventing employees from seeking help (Gardner et al., 2018), it is important that offshore employees recognise the signs and symptoms of psychological distress not just in others but in

themselves so that it may be possible to reframe thought processes before things deteriorate. Participant #5 agreed, stating that promoting self-awareness and understanding the source of stressors leading to negative thoughts should be a focus for organisations. Participant #1 recommended providing guidance material, something which both Bowers et al. (2018) and Henry et al. (2013) suggest should be central to addressing stigma.

Other notable themes in the discussion were the promotion of not only self-awareness and sources of poor mental health, but also of physical wellness, which was mentioned by participant #3 and participant #5; ensuring that organisations have preventative rather than reactionary approaches, providing psychological support (participant #6), opportunities for physical exercise (Cotton, 2006), ample sleep, adequate and varied nutrition and management of stress (Greden et al., 2019). Taubman et al. (2019) assert that universal interventions should be provided to all employees irrespective of whether or not they have symptoms or how likely they are to be at risk from poor mental health. These preventative measures include reducing the stigma surrounding mental health conditions, modifying behaviour, physical exercise, role play strategies, management of stress and work-related strains and improving the psychosocial environment of the workplace. Implementing universal rather than targeted interventions is more likely to build resilience, improve coping skills and reduce workplace risk factors for developing poor mental health. Taubman et al. (2019) believe that applying this sweeping approach to all employees limits the amount of stigma associated with programs targeting mental health because all workers are involved. Furthermore, universal interventions pick up employees who may currently be suffering from poor mental health but are unaware of what their symptoms mean or who are reluctant to seek help, as well as employees who may be at risk in the future.

'There's a lot of guys, mariners, that just can't keep up their tickets and things like that and just, you know, just basically get squeezed out of the industry and that's what's happened now. And now everyone is looking for people in WA and you know, a lot of good guys are gone and they can't get back into the industry because they just don't have the money to get their tickets again, like it costs so much for a casual employee on vessels to get all your tickets back again, you know you need a 15 grand kicker straight up there to get into it and you can't get a bank loan because you don't have the money or security so you're kind of stuck. We've lost a lot of good people'.

Participant #8 echoed concerns around lack of job security in a downturn, stating that a contractor may be working for one company one week, and another company the next week. Stating matter-of-factly that this was just part of the industry and that those on regular rosters would think themselves lucky because there are those whose jobs are not transferrable, such as divers and surveyors, who would find it difficult to maintain employment during a downturn. Participant #6 also stressed that psychosocial risk factors consisted of job uncertainty, low levels of role clarity, job control and supervisory support.

The culture of a workplace can influence whether or not an employee is open to seeking help (Henry et al., 2013). Participant #5 revealed that workers were expected to behave in a certain way and 'follow certain etiquette', identifying the 'macho culture' rife in this environment, where the male-dominated workforce may be of the opinion that seeking help for mental health is weak (Henry et al., 2013). Workplace culture is a fundamental driver in either enhancing or reducing the stigma around mental health issues (Bjerkan, 2010; Henry et al., 2013) and can even affect help-seeking behaviour and lead to hesitancy in reporting depression (Evans-Lacko & Knapp, 2014). Reducing and eliminating the stigma associated with mental health enables organisations to tackle mental health issues (participant #7), yet while intervening early is ideal (Bowers et al., 2018; Henry et al., 2013), it becomes challenging where there are low levels of help-seeking, ultimately increasing distress levels for employees (Battams et al., 2014). Consistent with Bjerkan (2010) and Henry et al. (2013), it was also revealed by participant #8 that workplace culture predicts reporting of physical injuries, where reporting is avoided due to criticism from employers and general workplace culture around reporting.

Participant #8 stressed the importance of utilising Employee Assistance Programs (EAPs) and referred to these several times throughout the discussion. EAPs have been found to be highly esteemed by employees (Dickson-Swift, 2014; Hughes & Fairley, 2021) and effective in helping employees to cope with personal difficulties (Kirk & Brown, 2003). However, programs which are not supported by management are not likely to be embraced by employees

or the outcomes may lack the success they promise. Employees also value programs where they feel appreciated and motivated and provide opportunities to socialise (Dickson-Swift et al., 2014). It is also important to note that employees need to be informed of EAPs, as Matthews et al. (2021) found that some workers were unaware that this was a service offered by their organisation. In their study of 44 males, the authors also found that a distrust in the independence of the EAP, scepticism about the effectiveness of the program, embarrassment at not being able to cope and a tendency to internalise or deal with problems themselves were major barriers to utilising EAPs. Matthews et al. (2021) also found that the impermanency of the workforce in their study, an unfavourable aspect of offshore work referred to by participant #4 several times, as well as competitiveness, resulted in the feeling that employees never perceived the ongoing support of co-workers to be fully reliable.

Figure 4.9

Word Cloud Frequency for further discussion



The word cloud generated by the word frequency query showed that job uncertainty, workplace culture influences on stigma and reporting and job unsuitability were the main themes arising from the exit question. Based on the findings of the analysis, a question was devised in order to gain insights into how workplace culture influences help-seeking and reporting of mental health issues.

Breen (2006) advises caution when there is a high level of disagreement or frequent shifts in opinion amongst focus group members as these indicate issues with reliability. As the participants in this focus group showed high levels of agreement around the issues being discussed and the frequency of opinion shift was low, there are good indicators that the focus group data was reliable and showed internal consistency (Rabiee, 2004). Because the researcher had no previous experience or insight into the offshore oil and gas environment and did not personally know any of the participants, it was not difficult to demonstrate researcher reflexivity.

4.4 Interview questions for the pilot study

As the focus group discussion was limited by time factors, some stressors revealed in the literature review were not identified. Environmental factors such as heat and humidity are known stressors for offshore workers, particularly in the North West of Australia (DMIRS, 2020b; Landon et al., 2019). Further stressors specific to the offshore work environment were identified in the literature review, such as changing and dangerous ocean conditions (Chen et al., 2009), continuous noise (Gardner, 2003; Haward et al., 2009; Parkes, 2017), motion

sickness and pain (Haward, et al., 2009), work-family conflict (Parkes et al., 2005) and sleep disturbances (Haward, et al., 2009). Bullying is also linked to many psychosocial hazards found offshore. Job uncertainty as well as high job demands and low job autonomy have been found to be significantly linked to bullying (Baillien & De Witte, 2009). Furthermore, heavy workloads can result in injury and fatigue (DMIRS & Worksafe, 2018; Mette et al., 2018a), heat stress (DMIRS, 2020b) and expose workers to psychological anguish (Parker et al., 2018). Geographical isolation was identified by Landon et al. (2019) to negatively affect behavioural health, personal relationships and levels of functioning within a team.

Please see Appendix 9 for the Pilot study interview questions developed based on the focus group participants responses and a review of published literature related to achieving the research aim which was to identify offshore oil and gas workers' mental health hazards and develop risk control measures.

4.5 Answers related to research objectives

The following table matches participants' question answers with the research objectives and provides some of the main concerns and solutions related to Western Australian offshore oil and gas workers' mental health hazards and some suggested risk control measures.

Table 4.1*Answers related to research objectives*

Objective	Q. No	Answer
1. Work-related mental health hazards and causes	1	Rosters. Working extended number of weeks (8) before having any days off work. 8 days off and then another 8 weeks of work.
	1	Insecure employment. Casual or short-term contract employment.
	1	Low level of role clarity
	1	Poor internet access making communication with family and friends onshore difficult.
	3	Fear of making a mistake.
	7	Having the wrong management, wrong people or the wrong working environment are mental health hazards.
	7	Having irregular employment or temporary work status.
	7	Worried about what will happen to the worker's job when there are border closures that prevent going to work.
	7	When there are no work skills and qualifications are unable to be maintained and it is very costly [e.g., \$15,000] to obtain these again.
	9	Low levels of role clarity, job control and supervisory support. Job uncertainty.
2. Systems of work, employer provided mental health education and support, and other strategies used in the offshore oil and gas industry to support employee mental health	4	Support. Co-workers ask RUOK?
	7	Employees requested having good communication from top management. Having someone to talk to about work-related problems to solve them. Screening out people who are not suitable for working offshore.
	7	Having a good relationship between employer and employees promotes positive mental health.
	7	Psychometric testing.
	7	Need to have employees with mental health resilience, particularly when unplanned work days are added to time working offshore.
	7	Employees requested having well-being interventions [Opportunity for improvement]

	8	Literature and education about mental well-being are provided by the employer.
	8	Employee recommended that promoting self-awareness and understanding the source of stressors leading to negative thoughts should be a focus for organisations. [Opportunity for improvement]
	8	Employee recommended that psychosocial support should be proactive, rather than just reactive. [Opportunity for improvement]
3. How offshore oil and gas employees' mental health needs are considered in return-to-work programs following a work-related injury or illness	2	Allocated light duties or office work until they are declared medically fit to work in their usual environment.
	2	Employees suffering from stress or fatigue have a more graduated return to work. Given the opportunity to return to their accommodation to rest or have some breathing space.
	2	Recommended to be provided with a bit of a hand over in advance over the phone with team members before returning to work, to catch up and just overall prepare to go back into that work environment.
4. Negative economic effects for employers and employees due to psychosocial illnesses	2	Fear of re-injury a barrier to returning to work.
	2	Difficulty in getting back into the swing of the work and loss of support = less productive
	3	Mistakes can be costly.
	6	Mental health screenings and programs are a direct cost. Indirect negative costs if not doing this are absenteeism, inability to focus, loss of production and a higher likelihood of making mistakes.
	8	Stigma and lack of support prevent employees from seeking help that can result in lower production.
5 Health and safety hazards regarding poor mental health and its impacts on offshore installations	1	Rosters. Working too many days without a day off is causing fatigue.
	3	Fear of making a mistake when fatigued
	3	Fatigue and burnout caused by shift rotations, shift patterns and duration of swings results in a reduction in alertness.
	4	Fatigue results in diminished attention.

	4	Poor mental health jeopardises the health and safety of everyone.
	5	Mistakes endanger others.

The aim of this research was to identify offshore oil and gas workers' mental health hazards and develop risk control measures. The answers related to the first research objective identified mental hazards. Common psychosocial hazards are related to five main themes.

- How work is organised
- Social factors at work.
- Aspects of work environment
- Equipment and hazardous tasks.
- Employment arrangements (DMIRS, 2021; ISO, 2021; NOPSEMA, 2021a; Safe Work Australia, 2019).

Under the theme of *how work is organised* the hazard of low levels of role clarity and low levels of job control were identified. *Social factors* identified were low levels of supervisory support, having the wrong management, employing the wrong people and poor internet access. As the offshore workers lived away from home for long periods of time when at work, not being able to communicate with their family and friends was perceived as being a mental health hazard. If the *work environment* was wrong it was perceived as being a mental health hazard. *Hazardous tasks* were identified as being a mental health hazard as there was a fear of making a mistake.

Employment arrangements were the most discussed mental health hazards. Mental health hazards related to employment arrangements included the hours of work (rosters), casual, short-term contract work, irregular employment, temporary work status and insecure work employment. There was also the worry of what will happen to the worker's job when there are border closures that prevent going to work. Related to this was the worry that when there was no work, workers' skills and qualifications were unable to be maintained, and it was very costly to obtain these again, particularly when the workers had no income for a long period of time.

Common issues of *how work is organised* echo both the onshore mining work environment and workplaces in general. Miller et al.'s (2019) study of onshore mine workers revealed that the onshore FIFO work environment is highly regulated, resulting in loss of autonomy and

control over work. Combined with separation from family, employees are at risk of significant psychological distress and may establish highly masculine work cultures that can lead to negative behaviours such as mistreatment of others in order to regain some type of control over their environment. Over a quarter of participants in their study of Australian FIFO workers were found to be at an increased risk of suicide. In fact, mineworkers are deemed to be an at-risk group (Parker et al., 2018). Long hours and extended rosters increase job demands (Parkes, 2017), and job demands and job control contribute towards job strain (Baillien et al., 2009). Demands of the job are also associated with high levels of psychological distress (Nielsen et al., 2013), however effects can be counteracted by job control (Karasek, 1979) and social support (Karasek & Theorell, 1990). Job demands and job decision latitude combined can significantly contribute to poor mental health, fatigue and disruptions in sleep (Karasek, 1979). As job satisfaction levels are higher when there is high decision latitude where job demands are high, an increase in both job control and job variety may prevent poor mental health.

Social factors at work such as poor communication, employing the wrong sort of person for the work environment (job unsuitability) and poor management are all serious barriers to mental wellbeing and productivity. Lower levels of interpersonal communication can lead to drastic consequences, as seen in the Piper Alpha disaster of 1988 (Cullen, 1990). Empowering workers and ensuring their engagement with the job are further factors that are essential in preventing major accidents (National Academies of Sciences, Engineering, and Medicine, 2018).

Aspects of the work environment can be a mental health hazard. Although onshore mine workers work in hot and isolated environments, added stressors offshore such as cyclones (Bureau of Meteorology, 2020), humidity (DMIRS, 2020b), hazardous ocean conditions (Chen et al., 2009; DMIRS, 2016), motion sickness (Haward et al., 2009) and helicopter travel (Bjerkan, 2010; Chen et al., 2009; Sutherland & Cooper, 1991, 1996). Concerns around making mistakes are common and fear of accidents from *hazardous tasks* are more likely during bad weather. Furthermore, expected changes in weather have been found to be a source of stress, placing workers under time constraints (Mette et al., 2017). A lot of accidents occur due to the perception that people have to get the job done and fear losing their job if they are unable to.

Employment arrangements such as long and compacted rosters, as well as changes in rosters, employment status (particularly short-term, temporary or casual status) and irregular or

insecure employment were identified as mental health hazards for offshore workers. Border closures enforced in response to the COVID-19 pandemic have prevented employees from going to work, leaving them unable to maintain up to date qualifications and skills relevant to the job.

NOPSEMA's (2021) guidance note advises organisations to conduct risk management assessments by implementing controls that ensure commitment from leaders and support from management together with continuous communication and discussion. Psychosocial hazards can be identified through accessing incident reports, employee feedback, formal complaints and employee surveys. Risk control measures can be primary in nature, where proactive approaches such as promotion of self-improvement and removal of stigma around mental health and prevention measures such as recruitment screening, job crafting and management of workloads are positive initiatives that pre-empt workplace psychosocial hazards. If an employee is already experiencing the effects of a psychosocial risk, intervention controls aim to reduce the length and severity of its effects. Organisations should aim to ensure that employees are aware of the contributing factors to psychological distress and what support services are available for them to utilise. These may be peer-support programs, Employee Assistance Programs or other sources of support. Employee Assistance Programs may also be part of mitigation controls (tertiary controls), which aim to reduce the likelihood of psychosocial distress becoming psychosocial injury. Further adjustments to workloads as well as recovery at work programs, where employees are reassigned duties in order to avoid specific psychosocial risks, are further recommendations from NOPSEMA (2021a).

In relation to the objective, two participants said that the systems of work were well organised with standard operating procedures, permit to work systems and appropriate work-related documentation. The first mention of mental health support was having support from co-workers who asked RUOK. Employers did provide literature and education about mental well-being to their employees. To ensure that the right people were employed to work offshore the larger employers conducted psychometric testing pre-employment to exclude from employing people not psychologically suitable to work in the offshore oil and gas industry.

Further support was asked for as the participants said that they needed to have good communication from top management in relation to what was being done for their mental health and this did not always occur. There was also a need expressed to have a good

relationship between employer and employees. With the difficulties being faced, particularly in relation to suddenly having to work extra days, weeks or months offshore, participants said that there was a need to build resilience in workers. Another risk control measure requested was for the company to provide well-being interventions to promote positive mental health for workers. As a suggested risk control measure, it was also stated that promoting self-awareness and understanding the source of stressors leading to negative thoughts should be a focus for organisations to improve their mental health promotion strategies. It was recommended by participants that psychosocial support should be proactive, rather than just reactive.

The third objective was to identify how offshore oil and gas employees' mental health needs are considered in return-to-work programs following a work-related injury or illness. While employees were medically unfit for working offshore, onshore office work was provided. The amount of work that employees were allocated was gradually increased as their fitness for work improved. Rest in the accommodation block was allowed when the employee needed breathing space for recovery.

Work was different offshore and onshore, so there was a recommendation that employees returning to work offshore should be provided with a hand over in advance over the phone with team members before returning to work, to catch up and just overall prepare to go back into that work environment.

There were negative economic impacts related to the return-to-work programs after recovering from a work-related injury in that some employees had a fear of being re-injured. In the communication provided prior to an employee returning to work offshore there is a need to explain the risk control measures implemented to prevent future injuries due to the same or similar causes to assist with minimising this barrier. The longer that an employee is away from work, the higher the workers' compensation costs are. Another economic cost identified was that employees returning to work after an injury or work-related ill health were reported to have difficulty in getting back into the swing of the work so were often less productive, while onshore employees had more support with their rehabilitation coordinator and services available and this was missed when they returned to offshore work.

Psychosocial stressors in the offshore work environment result in a significant cost to organisations in both lost productivity and compensation claims. Compensation claims for

psychological injury present the possibility of significant economic costs to organisations. Ill-managed stress can result in lower performance levels and a reduction in productivity, as well as sickness, disability and deaths (Sutherland & Cooper, 1996). Poor mental health that is not addressed affects attendance rates and accident rates among workers (James et al., 2018). Employees are more likely to return to work sooner if they feel supported by managers and colleagues, if the workplace has high levels of morale and where there are higher levels of resilience in employees. Workers will also be hesitant to return to work if they were unsatisfied with their role (Wyatt et al., 2017). Psychological injury and illness resulted in the most amount of time off work (17.3 weeks) and the highest median compensation of \$30,800. Preventing psychological compensation claims positively impacts the economy, relieves pressure on medical services and improves productivity (Cotton, 2006; Shaw-Mills, 2015). Improved return to work rates occurred in organisations which utilised health and wellbeing programs and return to work procedures and outcomes were found to be more beneficial to the organisation in terms of productivity and cost (Cotton, 2006).

Another negative economic effect described by participants was that stigma related to having mental health issues and lack of support when there are mental health problems prevent employees from seeking help and this can result in lower production. Stigma surrounding mental health issues can be significant enough to prevent an individual from seeking help. Attitudes of work colleagues and management in a male-dominated environment such as the offshore oil and gas industry can significantly influence whether an employee will ask for help, or attempt to struggle on for fear of appearing weak (Henry et al., 2013). Stigma continues to impact help-seeking behaviours (Gardner et al., 2018) and addressing this would lower stress and suicide rates (Bowers et al., 2018). Employers are frequently criticised for appearing to be supporters of mental wellbeing, yet do not demonstrate compassion when employees require support (Gardner et al., 2018), something which identified in the focus group discussion as ‘walking the walk not just talking the talk’.

Although The Productivity Commission (2020) consider it unnecessary to determine the cost of poor mental health and suicide in order to acknowledge their devastating personal and economic effects on sufferers and their relatives, friends, employment and on the community, they also state clearly that stigma increases the costs associated with mental illness. A reluctance to seek help due to societal and cultural beliefs about mental illness leads to a delay in diagnosis and treatment. Mental illness and suicide have been estimated by the Productivity

Commission (2020) to cost up to \$70 billion annually, although this is a conservative estimate due to limitations of data. Wyatt et al. (2017) estimated that poor mental health and suicide cost the Australian economy \$220 billion each year. For 2017-2018, workplace injuries and diseases cost \$1.8 billion, having increased by 3.7% since the year before (Australian Institute of Health and Welfare, 2019). Disability and early death associated with poor mental health is estimated to be equivalent to an additional \$151 billion per year. Reduced economic engagement (where less time is spent in work or education) along with lost productivity was \$39 billion for the year 2018-2019 (The Productivity Commission, 2020).

It was reported by participants that mistakes can be costly. Lee et al. (2018) estimated that the cost of the Deepwater Horizon oil spill of 2010 was \$144.89 billion in the United States, over two times greater than the reported \$62.59 billion in BP's income statement. Elkind et al. (2011) revealed that the disaster was ultimately a risk management failure, able to be retraced to a succession of mistakes, endemic to the culture of the offshore drilling environment at the time. Failing to adhere to safety systems generally result in much higher costs than what organisations estimate (Lee et al., 2018), and neglecting methods of the prevention of accidents and prediction of potential failures creates 'an accident waiting to happen' (Elkind et al., 2011, p. 105). Roberts et al. (2015) point to the fatigue due to the crew's three-week cycle drawing to a close and pressure to complete work as factors in affecting their situational awareness. Fatigue and stress are linked to a reduction in situational awareness, which in turn predicts higher levels of unsafe behaviour, leading to an increase in accidents at work (Sneddon et al., 2013).

Poor mental health may can make individuals feel fatigued, which can affect an individual's focus (Landon et al., 2019). Reduced alertness can affect job performance (Nielsen et al., 2013a). Isolated work environments as well as confined working areas are associated with threats to behavioural health, interpersonal relationships and ability to function within a team (Landon et al., 2019). In turn, interpersonal stressors affect attention levels. Poor focus at work and lapses in attention are a safety risk to workers and lead to poor reactions in stressful situations or emergencies (Sutherland & Cooper, 1996).

The economic costs of the Piper Alpha incident were estimated at \$1.6 billion (inflated US dollar cost, 2020 \$3.6 billion) (Rahman et al., 2021). Lord Cullen's (1991) enquiry into the disaster revealed a series of errors contributed to the events of 6 July 1988. Alarming, these

were not isolated oversights; rather a failure to adhere to procedure and following unsafe work practices. A particular grave error was the issuing of two work permits in separate locations, resulting in a discrepancy in paperwork and ultimately a failure in communications at shift handover.

Mental health screenings and programs are a direct cost. However, the Productivity Commission (2020) reported that higher levels of economic participation of individuals with poor mental health would see benefits of around \$1.3 billion per year. Approximately \$1.1 billion in economic benefits would come from priority reforms, such as prevention and early intervention, improved mental healthcare experiences and community support, encouragement of psychologically healthy workplaces, and recognition of improved mental health outcomes. Although expenditure of \$1.9–\$2.4 billion per annum would be necessary to achieve these primary reforms, a result would be that government expenditure would decrease by \$0.9–\$1.2 billion annually. Employers can access tailored assistance to help them in implementing inclusive recruitment procedures through the disability employment services funded by the Australian government.

The costs of not addressing mental health issues are absenteeism, inability to focus, loss of production and a higher likelihood of making mistakes. Failing to identify and treat poor mental health results in lower workplace attendance, lost productivity and higher rates of accidents (James et al., 2018). Prioritising good mental health and wellbeing has been identified by DMIRS (2020a) and Wright and Cropanzano (2000) as having a significant positive effect on productivity and performance.

A finding which emerged from the National Academies of Sciences, Engineering, and Medicine (2018) was that the realisation of safety outcomes is a continual improvement process, where employees making mistakes are an inevitable yet necessary part of the learning curve. One senior level panel member at the workshop stressed that while workers want to remain safe, there remains a detachment between safety and employee authority, where discrepancies between safety and other business priorities cause conflict between managers and workers. Ultimately, employees feel that they need to remain quiet for fear of losing their jobs, when ideally managers ought to be appreciative of an employee taking control over safety and exercising authority over situations they believe to be unsafe, even if the decision they make is a mistake. The panel member stated ‘I’ve worked with four organizations that are

deeply mature with a lot of grey hair and scar tissue behind them, and they celebrate stop-work authorities that cost them millions of dollars. That's an investment for them' (p 35). Echoing the findings from the focus group, the manager stated that just one misguided comment or one stressful workday can damage the trust between employees and middle management, which could ultimately take years to regain.

Depression and anxiety are common disorders and present a major occupational health concern worldwide, resulting in absenteeism (Arends et al., 2010), reduced productivity (Sutherland & Cooper, 1996), higher accident rates (James et al., 2018) and cost the Australian economy billions of dollars annually (Productivity Commission, 2020; Wyatt et al., 2017). Although there is no specific information available for offshore oil and gas workers' compensation costs, data can be garnered from Safe Work Australia (2023), who reported a total of 11,700 serious claims due to work-related mental health, costing \$58,615 per claim, compared to a median of \$15,743 for all claims. There has been an increase of 2.7% in psychological injury claims between 2011/12 and 2021/22 (9.2%) and a median time of 34.2 working weeks lost, compared to 18.8 weeks lost in 2015/16. In contrast, Safe work Australia (2023) statistics state that a median of 8.0 working weeks were lost due to physical injuries and conditions. Both the cost and amount of time lost are four times greater than for other injuries. For the same period, WorkCover (2022) reported an average cost of \$88,445 per claim for workers in the Western Australian mining industry, with 48% of claims lasting 60 or more days.

The number of work-related mental health claims were higher than incidents due to biological factors, chemicals and other substances, heat, electricity and other environmental factors, hitting objects with a part of the body and vehicle incidents (Safe work Australia, 2023). Mental health claims account for the largest increase in the number of annual claims for a nature of injury category. King et al. (2023) reported that compensation costs in the mining industry in Western Australia amounted to \$187.1 million in 2022-23. This figure includes the costs of claims in the oil and gas extraction industry.

According to one offshore mental health promotion trainer, the cost of a standard mental health promotion training program provided to Australian offshore workers is estimated to be approximately \$35,000, including travel cost. However, this figure does not include the wages for staff to participate in training. Tsutsumi (2011) suggests supervisor training should be

assessed in terms of cost-benefit. Training that is web-based saves time and space and allows for employees to progress at their own pace and if necessary repeat content. Internet-based interventions are also low-cost and offer privacy to the individual (KPMG and Mental Health Australia, 2018). As participant #5 pointed out, having sound mental health practices implemented for employees would be beneficial to organisations.

‘Stress or other mental condition’ accounts for the highest proportion of illnesses that led to absences of five days or more (KPMG & Mental Health Australia, 2018). There are direct costs when psychological compensation claims are made, such as employee wages and compensation costs, yet indirect costs to companies also need to be considered. The direct costs of employee wages for an offshore oil and gas worker is approximately \$150,000 per annum. Compensation for workers who have work-related mental health conditions has been estimated to be \$543 million (Safe Work Australia, n.d.).

KPMG and Mental Health Australia (2018) found that presenteeism cost \$9.9 billion in the workplace. Although measuring lost productivity, or presenteeism, is more challenging than measuring absenteeism and the cost of compensation claims (Mattke et al., 2007), absenteeism and presenteeism together cost \$3,200 per employee annually (\$5,600 for severe mental ill-health). Hours lost is dependent on how severe a mental illness is (Pricewaterhouse Coopers, 2014), therefore measuring the reduction in productivity generally relies on employees’ self-reported workplace engagement (Productivity Commission, 2020).

The cost of not implementing an employee mental wellness program might be as follows:

- Lost productivity is estimated at a minimum of \$3,200 per employee
- Average compensation claim for work-related mental health conditions \$248,820
- Average cost of mental health awareness program \$35,00
- Average offshore employee wage \$150,000 per annum (\$72 per hour)

Based on two workers compensation claims related to mental stress in a year, and assuming that lost production is not due to severe mental health, the ratio of benefits to costs are as follows:

Offshore oil and gas workers are paid an average of \$72 per hour, with the average working day being 12 hours, which is 84 hours per week. For mental ill-health, the average time lost is 26.6 working weeks. Therefore:

- Cost of employee wage while on sick leave = $72 \times 84 \times 26.6 = \$160,876$. If 2 employees take sick leave during the year, then this cost is \$321,752.
- Cost of hiring and training additional employees to cover workers on sick leave = $72 \times 84 \times 26.6 = \$160,876$. If 2 employees take sick leave during the year, then this cost is \$321,752.
- On top of the above costs for hiring replacement employees, an additional 5% for on costs must be added. When labour hire organisations supply workers, their costs will be higher due to insurance, taxes, statutory charges, labour hire company charges and other miscellaneous fees and costs. For 2 employees to be replaced, the 5% on costs surplus would be as follows: 5% of \$160.876 is \$8,044, therefore the total cost to replace one employee would be \$168,919. For 2 employees, this would be 337,839, for the length of the average compensation claim.
- Cost of workers' compensation claims for 2 employees= \$497,640
- Cost of presenteeism per employee = \$3,200. If 2 employees came to work during the year when they were sick this would be cost of \$6,400.

There are a variety of mental health promotion programs. The Safety4sea mental health promotion program [<https://safety4sea.com/online-platform-launched-to-help-offshore-workers-mental-health/>] provides free online community forums and discussion groups and free training courses that include Mental Wellbeing and Mindfulness, Stress and Anxiety Management, Alcohol and Substance Abuse, and Anger Management. There is a Mental Health 1st Aid course that has 12 hours of training, The Super Friend Programs (which include Mental Health and Wellbeing Training for Staff/Managers/Financial Services Industry) range from 3 hours to a full day. Beyond Blue runs a 90-minute course for managers, who then deliver three 5 minutes toolbox talks to staff.

- For this example, it is presumed that the company has 4 managers and 40 other staff and that the Beyond Blue mental health promotion program will be used. For the managers' training this would be 6 hours. At \$72 an hour the cost would be $[72 \times 6 =]$ \$432. Three 5 minutes toolbox talks would be 15 minutes. For the 4 managers and 40 other staff this would be 11 hours $[\times 72] = \$792$.
- The cost for the trainer to deliver this program is \$35,000.

The formula for Ratio of Benefits to cost is:

Costs of not having the program / Cost of having the program.

Ratio of benefits to cost is as follows.

$$\frac{321,752 + 497,640 + 6,400 + 337,839}{35,000 + 432 + 792} = \frac{1,163,631}{36,224}$$

This provides a ratio of benefits to cost of 32.1, indicating that for every dollar spent on the mental health promotion program a savings of \$32.12 was made.

The formula for Net benefits is:

Costs of not having the program – Costs of having the program.

Net benefits are as follows.

$$1,163,631 - 36,224 = \$1,127,407$$

Many programs are free for individuals and organisations, therefore participation in mental health programs is something that an organisation is able to encourage, at least on an individual level. However, if the intention is to employ a private company to conduct training, it remains evident that benefits still outweigh the costs. Although it is wise not to assume that net benefits will remain the same over time (Department of the Prime Minister and Cabinet, n.d.), the presumption can be made that the savings from implementing a mental health program offshore generates substantial savings. A compensation claim for an employee in Australia will create multiple expenses for an organisation, which are ongoing for the duration of the claim. Employees are entitled to receive reparation for lost wages, medical and rehabilitation expenses including travel to appointments, which may include accommodation and meals for those who live remotely. Further benefits can be claimed by employees who have suffered a permanent work-related psychological impairment, for example a lump sum payment along with regular compensation payments (WorkCover WA, 2021).

There are further potential costs not included in the cost-benefit analysis, such as damage from accidents. Accident costs can include the following:

- Investigation, preparation and writing of accident reports
- Repair or replacement or rectification of property
- Plant equipment or products damaged in the accident
- Clean-up costs
- Overtime work necessitated by the accident

- Cost of follow up actions, liaising with NOPSEMA Inspectors, meetings to discuss the accident and to prevent future accidents due to the same or similar causes.
- Costs associated with lost time by staff to assist the injured person and rescheduling workloads
- Employee rehabilitation
- Damage to reputation
- Employee turnover

KPMG and Mental Health Australia's (2018) recommendations to improve workplace mental wellbeing through supporting and encouraging employees with poor mental health to both acquire and sustain employment, as well as maintaining workforce mental wellbeing, would cost less than \$4.4 billion, yet yield between \$8.2 and \$12.7 billion. While the return-on-investment (ROI) figures in different healthcare domains such as chronic health conditions are often reported as losses (below \$1 per \$1 spent), ROI figures for mental health and wellbeing are high by comparison, with possible ROI estimates of up to \$10 per \$1 spent, suggesting the opportunity for considerable gains (KPMG & Mental Health Australia, 2018). Workplace health screening has shown an ROI of \$1.70 for every dollar spent and for physical interventions, the ROI is \$2.00. Even the most expensive workplace intervention, CBT resilience programs, yields a return of \$1.70 per dollar. From working alongside organisations to improve workplace mental health alone, KPMG and Mental Health Australia (2018) have estimated savings of \$4.5 billion. Carter and Stanford (The Australia Institute and Centre for Future Work, 2021) point out the further benefits of workplace interventions and programs, highlighting the societal gains which have been clearly established in both international and Australian research. Likewise, Iijima et al. (2013) discuss the significant reduction in healthcare resources costs as well as the costs associated with absenteeism.

The fifth research objective was to identify the health and safety hazards in regard to employees having poor mental health and the impact of employees' poor mental health on offshore installations. The major hazard identified was fatigue, mainly due to working too many days without a day off. It was feared that the impact of fatigue would be making a mistake that endangered others. Fatigue has been identified as causing a reduction in situational awareness (NOPSEMA, 2021a), decreased focus and a higher likelihood of making mistakes (Landon et al., 2019).

4.6 Chapter summary

Answers to the focus group questions and analysis of the data revealed the main concerns and risk control suggestions related to the questions asked to be as follows. The length of rosters and how they had changed due to COVID restrictions. Casualisation of the workforce. Reframing the discussion around making mistakes. Need for constant messaging from the top down regarding best practice for the promotion of mental health in the workplace. Psychometric testing and employee screening. Having good relationships between employer and employee, reducing stigma, increasing self-awareness, having the right mindset and providing a multi-dimensional approach to mental wellness. Fear of re-injury, fear of job loss, getting back into the swing of the work environment and loss of work identity. Lowering likelihood of mistakes and less need for supervision due to good mental health. Benefits of mental health literature and presentations (including stigma reduction), self-awareness, physical exercise, loss of focus and endangering self and others.

The focus group findings provided the researcher with a framework for developing the interview questions for the pilot study, which in turn provided the opportunity to refine the instruments utilised in the main research study.

An article was published based on the results from the focus group with quotes from the focus group members included. This article is in Appendix 12.

Reference:

D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M. & Lagat, C. (2022). Effects of the COVID-19 pandemic on employees' psychological health in the offshore oil and gas industry and opportunities for improvement. *World Safety Journal*. 31(2), 1-14. <https://doi.org/10.5281/zenodo.6790705>

The next chapter reports the interview findings.

5. INTERVIEW RESULTS AND DISCUSSION

5.1 Introduction

The interview results and discussion report the results of the pilot study and the main study which was conducted after the pilot study when any amendments had been made. Participants' demographic information was provided as well as their role in the offshore oil and gas industry. The chapter provides information that answers the research aim and objectives one to five as well as providing information that forms the basis of the audit tool developed for use in the offshore oil and gas industry.

NVivo 11 software was used to create nodes, sub nodes, themes and word clouds to analyse the interview question answer results. Quotes from research participants are included to highlight important information related to the research findings. For some of the mining industry research participants English was not their first language, but all were able to communicate well with the researcher. To maintain confidentiality the participants' real names are not included. The chapter commences with a description of the pilot study results, which have been analysed using descriptive statistics.

5.2 Demographic information

There were 29 participants that took part in the one-to-one interviews. Twenty-six participants were male and 3 were female. Participant roles in the offshore oil and gas industry varied, however the most common roles were General Service Operator (GSO) and Integrated Rating (IR). Three participants worked for a small company (less than 200 employees) and twenty-six participants were employed by a large company (more than 200 employees). The most common work status was permanent (19 participants), followed by contractor (8 participants). Five participants held casual work status. Contractor work status overlapped with casual work status for P4, and with being permanent (P8, P14) and P5 was a fixed-term contractor. All participants worked 12-hour days, with no days off while offshore. No participants identified as being part of a service company. Length of experience is displayed in Table 5.1

Table 5.1*Length of experience frequencies*

Length of experience	Number of participants
Less than 5 years	7
6-10 years	3
11-15 years	9
16-20 years	6
21-25 years	2
26-30 years	1
30+ years	1

The most common length of experience working in the offshore oil and gas industry was 11 to 15 years with the range being from less than 5 years to more than 30 years' experience.

Age group frequencies are displayed in Table 5.2:

Table 5.2*Age group frequencies*

Age group of participants	Number of participants
25 and under	2
26-30	3
31-35	4
36-40	2
41-45	3
46-50	3
51-55	4
56-60	6
60+	2

5.3 Interview question answers

5.3.1 *What are your rostered hours of work and for how many days/ weeks at a time are you at a rostered to work offshore?*

Ulven (2009) identified the 2 weeks on, 4 weeks off schedule as the typical Norwegian roster, however 3:4, 3:5 is classed as the Norwegian roster by participants in this study. It was also identified by P22 that the 3:3, 3:6 swing is also classed as a Norwegian roster or '15-week roster' (P2). Project-specific rosters were common in this study, associated with more managerial roles and were accustomed to the role of corporate workers. For example, P1 was

office-based and visited offshore sites twice a month and P16 was office-based, travelling offshore when there are drilling activities.

The most common regular rosters were 5-week swings, with equal time on and offshore, and 3 weeks swings, with equal time on and offshore. This was followed by 3 weeks on, 4 weeks off; 3 weeks on, 5 weeks off (Norwegian roster) and the 3 weeks on, 3 weeks off; 3 weeks on, 6 weeks off roster, also known as a ‘Norwegian roster’, or 15-week roster. P29’s rostered hours of work were 4 weeks on, 4 weeks off, with occasional 5 week shifts to make important dates work. P29’s previous roster was 3 weeks on, 3 weeks off, or 2 weeks on, 2 weeks off, with one 9-week swing in Asia (due to COVID-19). P23 worked 4-week equal time rosters when they were offshore, but were now office-based. A two-week, equal time roster was worked by two participants (P15, P21). P11 worked 5- or 6-week swings, which were very erratic. Although offshore employees worked twelve-hour shifts, at times hours are sometimes dependent on workloads (P13). Roster types and their frequencies are stated in Table 5.3.

Table 5.3

Roster types and frequencies

Roster type	Frequency
3 weeks on, 4 weeks off; 3 weeks on, 5 weeks off (3:4, 3:5) (Norwegian roster)	4
5-week swings, equal time	5
3:3, 3:6 (also known as Norwegian roster)	4
3-week swings, equal time	5
Project-specific/As needed	6
2-week swings, equal time	2
4-week swings, equal time	2
5–6-week swings	1

5.3.2 How do you feel about your roster?

How workers feel about rosters is important in the FIFO industry and perceptions of unfavourable rosters are significantly associated with turnover intentions (Brown et al., 2014). While the majority of participants were happy with their roster, and some even stated that the roster arrangement was one of the reasons for working offshore, some felt that the five weeks away was too long. P24 explained that the fifth week is difficult for both them and their partner. Likewise, P12 revealed the effort currently being made through their new Enterprise

Bargaining Agreement (EBA) to campaign for four-week equal time rosters. Although it was acknowledged that it would mean less time at home, it was not a major concern, as during the fifth week at home attention turns to work and they are ready to return offshore. In general, views about the roster were positive. The most common roster, and the most well-received, was known as the 'Norwegian roster', consisting of 3 weeks on, 4 weeks off and then 3 weeks on, 5 weeks off. The 3:3, 3:6 roster is also a common roster for Australian offshore workers, but the 3:4, 3:5 roster seems to be preferred swing and the gold standard according to P6:

'Brilliant, doesn't get any better, like you know, for many years, like when I first went into the oil and gas, it was four weeks on, four weeks off. That was pretty arduous, especially the 4th week. And yeah, a lot of guys struggled with that. But as the Norwegian roster as we call it became almost an industry standard, it was a massive improvement'

This opinion was echoed by P18:

'Yeah, well basically it's a good roster, it's just gone to that configuration now, we used to be on 3-3-3-6 before, but yeah, in terms of what's out there, falling short of getting more time off it's the best we could probably get.'

Roster length can contribute to stress and poor mental health. In onshore-based FIFO mining, rosters can be negatively skewed to employees so that they benefit organisations and overlook the health and wellbeing of workers. For example, the 4 x 1 rosters were termed the 'suicide roster' by participants in the Education and Health Standing Committee's (2014) report. Many participants refuse to consider rosters that are less than equal time and this was a particularly important criteria for employees with families and children. Equal time rosters are more family friendly (P15), particularly with young children (P13). As Parkes reported in 2010, rosters, on UK offshore facilities at least, have generally always been made up of equal time offshore and onshore, however it has been the case that rosters have gradually increased the time spent onshore. For example, the 2 x 3 roster utilised on North Sea installations balances the ratio in favour of time spent onshore, at that time a recent adaption implemented to facilitate the hiring process and lift employee morale as well as reduce employee turnover and has since been widely utilised in the industry. As a result of lengthier onshore breaks, employee retention and morale has improved (Parkes, 2012). P7 listed it as being one of the reasons they worked offshore. P21 describe the 2 x 3 roster as the '*perfect balance*'.

Occasionally, employees are required to work additional hours during times of high production, or if work partners become sick (P29), however a fatigue management risk assessment is to be completed when this happens, especially when overtime occurs over consecutive days. P1

believes that this is well managed, although overtime work had steadily increased in response to absenteeism due to the COVID-19 pandemic. Sometimes, P29 will extend their own roster offshore in order to acquire more time off, which would usually be a 4 x 4 swing. Although it could be tiring, it meant that they were *‘more ready to come back to work at the end of it, which I don’t feel after 2 weeks off’*. Unfortunately, there may be further drawbacks to spending so long offshore:

‘It also depends on who I’m rostered on with – if it’s under a wellsite manager I find difficult to work with then 4 weeks on can feel like a very long time’ (P29)

Fatigue was an issue identified by P28, who worked a 3:3 roster, and this was significantly connected to having to maintain constant situational awareness:

‘... you’re working every day and you know, there’s not just the work because you’re living on the facility as well, you’re really, you gotta be on your game 24 hours a day, seven days a week. And the reason I say that is because you gotta be aware of all your safety protocols if something does go down, for example, if you’re 200 kilometres offshore we really depend on each other’

Fatigue is also a hindrance to adjustment to returning home, particularly when rosters stretch beyond two weeks. Offshore workers are often exhausted when they arrive back onshore. P26 disliked the roster and felt that it did not provide sufficient time off, however this participant was placed offshore for two or three weeks and then was expected to return to the office once onshore, so was not experiencing equal time away from work. P27 had similar issues, and at one point raised a concern with supervisors who took the matter on board and it was felt to be resolved. The usual roster for employees who were not project-based was described as *‘pretty robust’* (P27). Unfortunately, extended periods away due to COVID-19 caused significant impacts on readjusting back into the home environment (P18). A noticeable difference in offshore rosters in comparison to those in onshore mining is that offshore workers spend much longer offshore, perhaps due to the distance and mode of travel. Sibbel (2010) reported the most common rosters to be two weeks on, one week off, nine days on, five days off and eight days on, six days off for onshore mining. In Clifford’s (2009) study, the most common roster arrangements were fourteen days on, seven days off, eight days on, six days off and nine days on, five days off for onshore mining. In more recent reports, the Australian Workers’ Union (AWU) (2021) stated the eight days on and six days off roster to be the most commonly used by onshore organisations. In comparison, some of the offshore oil and gas industry employees were offshore away from family and others for more than 3 months during the COVID-19 pandemic. FIFO employment for onshore mining is more likely to use short, non-symmetrical work schedules, whereas offshore oil and gas rosters are generally even-time and at least two

weeks away (Sibbel, 2010). Shorter (Henry et al., 2013) and even-time (AWU, 2021) rosters for FIFO workers are linked to significantly better mental health and wellbeing outcomes.

5.3.3 Have you experienced any management or work organisation factors that have caused you stress? If yes, please explain how this affected your mental health.

Management and work organisation practices can seriously affect mental wellbeing. The way work is organised includes shift patterns, job demands, work design, job variety and workload. Management factors which can affect mental health are wide-ranging, from leadership styles to the way incidents are dealt with. The following factors were identified as themes related to management and work organisation which affect the mental health of offshore workers.

Poor management of organisational change

At the time of interview, P4 was currently looking for work elsewhere due mostly to the poor change management which occurred recently. They are one of two employees who works as a compressor technician, and explained the ill-managed changeover process:

‘...yeah that's been an interesting changeover process because we've ended up without a technical lead and so they did this process really quickly and so then that fell onto us, so it doesn't matter how much work we do, we're not an entire company with an office that has all the technical support in the world, you know, so we're just doing our best until that gets sorted out’ ... ‘it wasn't managed at all. It was a snap decision, like they're still dealing with the fallout now and this has been nearly a year later and we're still struggling with it, but it seems to be, yeah... the longer you've worked in industry the more you feel like sometimes nobody seems to know what's going on’.

Personally held beliefs about an organisation's history of poor change management showed a negative association with trust in Bordia et al.'s (2011) analysis of change management. A lack of trust in the organisation was associated with low levels of job satisfaction as well as higher levels of turnover intention, suggesting that willingness to leave their company stems from poor job satisfaction due to a lack of confidence in the organisation to manage organisational change. When employees have experienced poor change management, their expectations of how future change may be managed are impacted negatively.

Tyrannical management style and micromanaging

An intimidatory style of management, or tyrannical leadership, has been linked to a decrease in job satisfaction over a period of 6 months (Skogstad et al., 2015) and is a significant cause of psychological distress (Nielsen et al., 2013b). Some time ago, it may have been more

acceptable, as P23 described them as ‘*tyrannical*’ and ‘*excitable characters*’ and that ‘*you just took it in your stride. Was never perceived as bullying or anything*’. Yet workers who see their supervisors as abusive or tyrannical describe feeling betrayed, resentful, and frustrated. Furthermore, they have higher levels of distrust and mental fatigue (Bies & Tripp, 1998). Lack of an open management style and an inclination towards more authoritarian leadership can impact the mental health of employees (P22). An unfriendly or unsupportive manager, or one who blames others, results in an unhappy workforce who dread returning to work (P29). Leaders who micromanage their employees are doing so not only to prove their authority and perceived superiority, but as a way to retain control over workers. They also reveal their lack of trust in those they manage (Tavanti, 2011):

‘Some are much more demanding than others and don’t have much trust in you, some have big “egos” / make the most of being in a position of power and will tell you off for things as opposed to support you or guide you’ (P29)

As much as micromanaging reflects the need for control and a lack of trust, it also indicates a pattern of leadership which leans towards the reinforcement of perceived superiority and the bolstering of egos. Thus, micromanagers are often annoyed when employees show autonomy or make decisions on their own:

‘The managers that we had there have moved on now, but they were quite strong egos and an intimidatory management style. And in particular it was... because look, you know I’m in quite a strong trade union, which I’m proud to be. But having said that, that doesn’t mean we’re, you know, rebellious, but we won’t accept anything less on safety or conditions of work and these guys have come in with a pretty intimidatory style, so yeah we were definitely singled out. But you know, you had to watch your back at work in regards to what you did on jobs, they check up on you, send people out to make, you know, try and catch us out on safety to try and undermine us being on board’ (P6).

There is often a reluctance to identify oneself as being part of a union or utilising the support of a union for fear of being dismissed and support is often sought on the basis that users will remain anonymous.

‘And then you got the unions, you know, we all got different beliefs in how the unions work. And our union’s really strong. We’re really, the deck crew side of things, we’re all in the MUA and we’re all pretty passionate, passionate about that. And that can cause little grievances’ (P12)

Employees speak highly of their union and their connections and support that they receive. Participants showed passion and pride when they talked about being part of a strong

organisation (P12), whose members take pride in looking after each other, picking each other up and going forward together (P6):

'I think the fact that we're predominantly almost a totally unionized workplace makes it better because we've adopted these new techniques around mental health and the acknowledgement and the progressive side of dealing with mental health in the industry, because we've had plenty of comrades take their lives, you know' (P6)

Mishandling of incidents

Organisational responses to events which are upsetting to employees, such as accidents, natural disasters, organisational emergencies or crises and workplace violence, should remain centred on people rather than the organisation and the systems and processes that underpin it. Focusing on the organisational effects of an incident while disregarding employees is a grave oversight, especially when considering that a serious workplace crisis may seriously undermine levels of trust between employees and their co-workers and supervisors, impair communication of critical information, sabotage group processes and reduce the effectiveness of management (Braverman, 2003). When mishandled, incidents such as workplace aggression and bullying affect employees and organisations negatively (Neall et al., 2021).

'One was an incident that happened on a vessel. It was only last year actually. Beginning of this year sorry. It was an incident that happened on a vessel that I felt was handled, possibly due to COVID a little bit, but it was handled quite clumsily when it happened, when it occurred. They should have removed both myself and the other party off the vessel at the time that they didn't and some of that was due to the COVID situation and some of it was due to the lack of being able to replace both of us so quickly off the vessel. The incident was against me, it wasn't against the other crew member. I was actually happy to stay on board, but I would have been happier if the other person had been removed at that time, yeah, but anyway. That's really company policy to do that in a situation like that where there was witnesses involved in the situation without going into the situation because it will make it long and complicated. They should have been removed and they weren't. The handling of it after the fact when it was all being sorted out. I knew what the reverberations were gonna be with some other people, members, in the fleet and it happened. And that's what caused me the stress. The incident itself didn't cause me the stress, the stress came afterwards, which I predicted. When other crew members took an opinion about it and most of them that weren't there. So it was like, yeah, it was one of those female things, female-male things that went on anyway. But it was witnessed by three males who stood up for me, but some males think that you're being woke or whatever it is that they've got in their head and they then bully you afterwards and make you feel like you were lying or something like that' (P20)

Gender-specific discrimination and harassment, in a wider context than sexual harassment, encompasses unacceptable behaviours such as sexual jokes (Guo & Liang, 2012) and remarks (Champions of Change Coalition, 2020), unwanted comments, verbal advances and speculation or gossip about personal relationships (Collinson, 1999; Thomas, 2006). Women

are overrepresented in harassment and bullying cases in predominantly male environments like offshore oil and gas and this risk increases where the work is precarious (Österman & Boström, 2022). In 2021, the Western Mine Alliance called for the establishment of an independent industry-funded body to monitor claims of sexual harassment so that employees may raise grievances without the fear of reprisals or being blacklisted by management (Western Mine Alliance, 2021). While P20, a casual worker, reported the incident, many women do so only in extreme circumstances, perhaps due to unsupportive reactions or responses that suggest that sexual harassment is to be tolerated (Thomas, 2006). Workplace behaviour that is inappropriate is considered a psychosocial risk by DMIRS (2022c). It is harmful to wellbeing and should be dealt with according to the procedures of the workplace and its behaviour standards policies, which should be implemented consistently. Unfortunately, the incident described by P20 was not dealt with in a manner which showed that there was a discernible commitment to consistent behavioural guidelines, which itself creates feelings of frustration and injustice and increases the likelihood that the complaint will be escalated to an external organisation (Neall et al., 2021).

A masculine or 'macho' work culture may create challenges for female workers (Vojnovic et al., 2014). Female employees in male-dominated industries have reported that there have been difficulties in the maintenance of boundaries with male co-workers (P29), along with harassment and discrimination (Sibbel, 2010). Other studies with female FIFO employees have reported similar issues, where women feel under constant scrutiny, have little contact with other females and find boundaries with male colleagues hard to maintain (Pirota, 2009). Austin (2006) proposed that when men were offshore, they were away from the obligations of home life, which included acting respectfully. The women who began working offshore in the 1980s found a pervasive culture of inappropriate sexual conduct, including consistent talk about sex, open use of pornography, physical assault, and sexual harassment. There is a higher likelihood of sexual harassment occurring if the workplace culture is accepting of sexually or racially inappropriate jokes, comments or conversations. Furthermore, this risk increases in isolated and remote working environments and in restricted and confined spaces (Safe Work Australia, 2022).

One potential female participant for this study chose not to go ahead for fear of being identified and any repercussions that may subsequently arise. Although given assurance that all participants are de-identified, the interview did not take place. Although P20's workplace may

have had clear policies and procedures in response to harassment and bullying, these were seemingly not implemented fully or correctly. That it happened during the COVID-19 pandemic should not really be a factor, as the workplace culture should be aligned with both current legislation against discrimination and with a supportive and inclusive workplace (Stratton et al., 2018). Policies that deal with discrimination should set clear directives on the process of investigation for incidences of bullying, harassment or inequality (Brooks & Greenberg, 2022). Where organisations visibly demonstrate and enforce sexual harassment policies, there has been a subsequent reduction in incidents. Thomas (2006) recommends verifying bullying and harassment policies during introductory training, which should also aim to increase awareness of issues and establish understanding of organisational policies. Policies should also be implemented in a fair and consistent manner (DMIRS, 2022c). Other suggestions include the designation of an onshore trained professional that deals solely with cases of sexual harassment and placing women together on the same facilities.

P27 found that the key to building trust with employees and teams as a whole is being open and honest and utilising a more laidback managerial approach. This also helps to create familiarity and break down the barriers which are often present when new employees arrive on a facility:

‘But as soon as those barriers start coming down, it really helps, especially from a managerial perspective where I can as the offshore construction engineer we’re technically the managers of the job. So it gives us the ability to approach the crew, whether it be the shift supervisor or the offshore construction manager for the ship, or the captain, and have a discussion with them where we know that both of us are being open and honest about the situation and that significantly reduces the presence of stressors’ (P27)

5.3.4 Have you had any time off work due to stress?

The majority of participants had not taken time off work for stress. Those workers who did decide to take some time off were generally satisfied with the manner in which their organisation dealt with their issues. P15 needed to take some time off to spend at home and the company allowed work to be temporarily carried out in their hometown until they felt comfortable enough to go back offshore. P17 had suffered with poor mental health, resulting in time off work, and was satisfied with the level of care throughout the time away:

'I mean I had a period a long time ago where I needed some time off of work due to stress and anxiety and returning to work, I made it very clear that, you know, I wasn't 100%, and I think my physical and mental health was considered carefully' (P17).

A similar account was given by P7, who had gone home twice while offshore:

'There was one time I had to go on a flight out to Perth and then from there I went home. So yeah, that was looked after and a few phone calls after it. The other one was probably when I got COVID out here on-board last week and they flew me off the facility and they put me in a mining camp for a week, which is better than being stuck out here in a cabin with no support or fresh air. So that was pretty good. They were pretty quick to react to that. Had a plan in place and as much as a mining camp doesn't sound that flash, but it was better than being out here' (P7).

While this is encouraging, some employees in this study have appeared to navigate their way around requesting outright time off work due to stress by either declining work or extending their start date back at work (P10), taking extra accrued leave (P13) or by deliberately choosing not to return to certain vessels (P11), rather than directly stating to their employer that they require time off due to feeling stressed. This reflects the findings of SANE Australia (2014), which revealed that of those employees who had taken unplanned leave for a mental health problem, 41% had not provided the real reason to their employer. Stratton et al. (2018) found that workers were avoiding the disclosure process by using annual holiday and sick leave. Often, uncertainty around symptoms means that without assessment participants were unsure whether they had ever had a psychological illness (P4, P6, P20) and so had not sought help. One solution to this may be a mental health screening tool at work (Stratton et al., 2018).

Employees may know themselves when it is obvious that it is time to take a break. Extended stays offshore due to several different factors means that sometimes taking time off is 'overdue' (P27), even with an absence of poor mental health symptoms. Rather, indications of burnout may present themselves when an employee has been working consistently without sufficient time off.

'So I think for me, this year, burnout was probably pretty close. I was borderline burnout, but I think I've been, I've received enough training, enough support to learn how to identify the signs of burnout as they come, because you'll have small signs early on, lack of motivation, you're feeling tired, or you're feeling lazy when those start popping up. Then I'll start reassessing and saying, alright, is this burnout or is it just lack of sleep or is it just, you know, anxiety or something like that? It's having the right training and the right tools and the right mindset to identify and self-awareness to identify that you are going through burnout I think is the key thing. But, as long as you

say something about it, as long as you mention that you're going through it, I think that's the most important thing because people can't read your mind' (P27)

That is not to say that eventually this would not lead to a decline in mental health. Stress at work has been established as detrimental to mental wellbeing (Battams et al., 2014; Stansfield & Candy, 2006), particularly in male-dominated industries and where work is isolated or solitary, workload is high and employees operate in unsatisfactory physical conditions. While the term burnout is often used interchangeably with stress, Pines and Keinan (2004) argue that although they are both negative reactions to stressors within the workplace, their origins, correlates and outcomes are different. Although burnout has been placed under the umbrella of stress, it does not help matters that both concepts are poorly defined. Carmona-Barrientos et al. (2020) distinguish between the two related concepts by establishing burnout as a consequence of an accumulation of stress.

5.3.5 *Are there any environmental factors that have affected your mental health when working offshore? If yes, please explain.*

Perceived environmental stressors

There were several factors that were identified by participants that were not included in what the study had classed as environmental stressors (climate, ocean conditions, noise, vibration, heat/humidity, confined working spaces and poor air quality). Although the questions were of an open-ended design, where this discrepancy between the researcher's and the participants' conceptions of environmental factors occurred, the question was stated again, with some examples (generally '*heat, noise, the presence of the ocean*') to act as a guide to clarify the meaning of 'environmental' as intended by the researcher. Interestingly, participants still diverged from the researcher's construct of 'environmental' and it appears that respondents were identifying indoor environmental stressors, as opposed to outdoor environmental ones. Table 5.4 lists the environmental stressors identified by number of participants, including small living confines, which includes the isolated environment, a lack of privacy and lack of a social scene. Although these factors were mentioned in response to other questions in the interview, they were clearly seen as types of stressors in an employee's personal environment. The following table shows the participants who identified each factor as a stressor in their environment.

Table 5.4*Environmental stressors for offshore oil and gas workers*

Stressor	Participant number
Being away from family	P15
Shared cabins	P3, P4, P6, P8, P19, P29
Close confines	P4, P6, P11
Heat/humidity	P1, P6, P7, P8, P9, P13, P16, P18, P23, P25, P26, P28
High pressure environment	P22
Isolation	P4, P5, P13, P15, P24
Lengthy travel times	P28
'Clock-watching' supervisors	P22
No private space/solitude	P3, P4, P6, P11, P29
No social scene	P6, P12
Noise	P4, P8, P9, P10, P13, P14, P18, P20, P23, P24 (older boats), P29
Poor food	P29
Poor internet	P12, P14, P17, P29
Same people	P12
Shifts	P16, P25, P29
Smell	P4
Vibration	P20, P24 (older boats)
Work never stops	P8, P29

Heat and humidity

While the temperature in the Western Australian offshore working environment is undoubtedly hot, the humidity is a further factor to consider. Not only is it *'stinking hot'* (P18), but high humidity is also more common between the months of March-May, where it is likely that workers are *'going through a number of pairs of overalls a day'* (P18). Heat stressors are well-managed by organisations, where avoidance of dehydration is impressed upon workers and regular breaks are encouraged. The consequences of dehydration were evident when interviewing P28:

'One of my colleagues, he did get heat stress and ended up in hospital. And unfortunately for that person, he did have some slight brain damage as well... As far as I know, no, he won't be working again, to be honest'.

Workers look out for their colleagues (P28) and would prefer to see co-workers on a break with refreshments rather than have to treat someone for heat stress (P22). There is sufficient education imparted to employees around planning work, with an emphasis on performing tasks between 10am and 2pm in the shade (P13). Furthermore, consideration is given to organising

time and managing fatigue (P8 and P9). In addition, workers are encouraged and reminded to stay hydrated (P13, P16 and P18). In this regard, breaks are managed well (P9 and P18) and there is an option to stop work when it becomes too hot (P13). Nonetheless, it can be difficult to interrupt the flow of work and it is difficult to walk away sometimes and take a break (P8). P7 stated that they found the heat harder to deal with the older they got, even though they expected to have become accustomed to it and felt that the heat may have worsened as time progressed.

Other participants accepted the heat as part of the environment they work in. However, P8, who worked north of Broome and in the Timor Sea, stressed the intensity of the heat in that area:

'No, just the heat, the oppressive heat. You got heat coming off the equipment. The engine room like it's just hot, hot, hot. We'll do our first three hours, you know, we'll go outside at 7:00 o'clock in the morning and when we come in for smoko at nine, we just have to drop our overalls on the ground and put a fresh set of overalls on. So we'll do a set of overalls every three hours. You can't come back inside into the air conditioning and with absolutely sweat sodden overalls. Yeah, you just get the chills'.

Despite that, the organisation provided ample education on heat stress, urged employees to plan tasks accordingly, organise time well, manage fatigue and take regular breaks. Workers are well-informed and are aware of their entitlements, but still find themselves 'ground down' (P8) by the heat over the summer months. Work 'just goes on. There's no stop' (P8). One vessel P8 had worked on had utilised a day at the end of the work to regroup:

'One of the other vessels that I worked on previously, that had on Sunday, it was Safety Sunday and it was time to take a breath and regroup, where we would do those safety exercises and we would go for walks around the deck doing a clean-up but there was no...it was only safety critical work that got done on that day. There wasn't just like general work. Everyone just pulled it back and caught up on a bit of paperwork, did a bit of online training, something like that. It wasn't a day off, but it just gave you that regroup day like to focus up, OK, we're starting tomorrow. Tomorrow's the start of the new week. I just think that was a really, really good idea. It's never been taken up by [company name]. They've just got work that they need to get done and they just charge along'

Safety Sundays was also part of P28's workplace, which helped to facilitate open conversation and mitigate stigma:

‘...we’ll have a meeting, you know, as a whole team and then there might be a theme, there might be R U OK? So you talk about stuff like that. That’s pretty much open’.

According to P29, seemingly minor things can have a major effect on mental wellbeing. For example

‘Having the top bunk bed instead of the lower bunk bed, TV not working in the room and the chair in the room being broken, not being fixed, having to share the same shower with 3 others who work the same shifts so sometimes can’t shower until much later than usual or have to go use the change room showers instead of the one attached to the room’.

Noise and vibration

Noise is continuous offshore (Gardner, 2003; Haward et al., 2009; Parkes, 2017), from ‘constant engine noise’ (P10), to noise that is above the Australian standard in rest areas, although it must be taken into consideration that the participant was referring to a vessel in 2006/2007:

‘Yeah, so some of the ships I have worked on we had issues with noise. So we had some industrial relations issues and safety matters. So we had to pursue that avenue I guess. The employer didn’t wanna do anything. And the noise was above the Australian standard for workplaces. So in resting areas, as well as in workplaces, above 85 decibels continually. So yeah I have been on some ships where that’s had an effect. Five weeks of excessive noise when you’re trying to sleep is a bit hard’ (P13).

Exposure to noise is linked to fatigue, irritability, headaches, insomnia, and poor concentration. Team relationships are impacted in noisy environments. Social behaviour is also influenced in that there is a reduction in helping behaviour. There may be increased hostility, aggression and negative attitudes towards others, factors which often worsen interpersonal relationships and affect team functioning (Jones, 1983). Noise is not merely an irritant to individuals but is linked to physiological arousal processes such as a rise in blood pressure and the release of stress hormones adrenalin and cortisol (Sutherland & Cooper, 1996). Exposure to levels of noise at or above 85 decibels for three to five years is linked to greater incidences of a range of non-auditroy conditions, such as cardiovascular and infectious diseases and gastrointestinal ailments (Sutherland & Cooper, 1996).

In Haward et al’s (2009) diary study, 18% of sleep interruptions were due to noise, motion and vibration. Interrupted sleep and sleep deficit is linked to a decrease in performance, particularly in the domains of attention and alertness (Lim & Dinges, 2008). Decision-making is also affected, as well as executive attention and working memory (Goel et al., 2009). Motion can

also cause sleep disturbances (Haward et al., 2009), although this seems to depend on the type of offshore facility. In particular, vessels appear to be subject to vibration:

'Yeah, noise and vibration can upset sleep patterns. Yes, that does happen, especially when they're on DP. The positioning stuff. Some ships, just depends on the vessel. Some vessels are really vibrating. If the shaft isn't quite right the ship can vibrate, it can bounce as well, and depending on the seas that you're in as well sometimes. I know I've had nights, you get at least two nights or three nights where you hardly sleep, yeah. I'll use that as an average' (P20).

While it was acknowledged that the offshore working environment was noisy (see table 5.4), this appeared to be less of an issue for some employees and they generally accepted as a part of working on an offshore facility. In fact, the 'ambient noise' from air conditioning can act as a sort of blessing;

'You don't notice other noise when you've got that big white noise around you. So if you've got, if you got someone snoring in your room or whatever, you know it's, like put your earbuds in. But noise isn't such a factor. It's there and it's always noisy, very noisy outside' (P8).

On vessels, newer boats are quieter and there is minimal vibration, however this appears to be only a recent change, as P24 recalls major noise and vibration problems in 2006/2007:

'And it was 98 decibels, you know on the noise thing. And when the engines were revving and the bow thrusters were going, the salamander used to vibrate that much, that the rack would vibrate out and fall on the floor.'

For P29, room location was an issue due to ongoing work outside:

'There has been a few times where I have had minimal sleep because the night shift crew have been needle gunning on the deck right outside my room, or the crane has been bringing casing onto the deck all night which makes a loud bang when it hits the deck. Other small things that can affect mental health offshore are muster drill time, drills are weekly but sometimes there's only one night drill a month or every few months and the rest are day drills, meaning once a week people have 4 hours less sleep. Short changes also affect sleep quite a lot, where crews will do shorter shifts for a day or two to swap over to the opposite shift i.e. swapping from 12am – 12pm to 12pm – 12 am, then their sleep is out of whack for a few days while they transition over. I've found once you lose a bit of sleep one night it can feel hard to catch up'.

Providing space to withdraw from noise is an important factor when considering the needs of offshore workers, particularly as sleeping quarters should provide a certain degree of privacy (Landon et al., 2019). Job resources such as private accommodation could also be optimised to mitigate the impacts of job stressors (Vojnovic et al., 2014). P9 alluded to colleagues having difficulty with snoring whilst sharing a cabin, however that did not concern them personally.

For P11, it was more of a cumulative effect of heat, noise and long shifts that resulted in detrimental impacts on health, supporting McNamara and Smith's (2020) findings that psychosocial hazards offshore are incremental. Long and unsocial hours together with noise and the psychological stress of time pressure in combination with shift schedules created had a direct effect on health and wellbeing. Workers on offshore installations were affected more negatively than seafarers, perhaps due to shift type, with installation employees tending to work rotating rather than fixed shifts.

Shifts

Shifts can vary, and also change frequently, depending on the facility or vessel. Moreover, if there are operations, shift times can start earlier and end later, as well as be split throughout the day and night. For example, P12 explained that sometimes it is common to start at two o'clock in the morning and finish at eight o'clock in the morning, then return to shift at four o'clock in the afternoon and work until ten o'clock at night. Sleep loss is incremental when employees remain on night shift, resulting in a decrease in alertness levels. Furthermore, periods of disturbed and broken sleep increase the risk of accidents and injuries (Haward et al., 2013). At an onshore mining site, Maisey et al. (2022) found that night shift workers were sleeping on average one hour and 30 minutes less than they would when on leave. Even when working day shifts, a start time of earlier than 06.00 has been linked to loss of sleep. In P12's case, a morning start of 02.00 and a late evening finish of 20.00, albeit with a break in between, would undoubtedly cause both sleep disruption and dysregulation:

'But if there is operations and you're needed on deck, you'll go out on deck as well, especially if it's night time operations. So your sleep can get really stuffed around on that shift and you can become really grumpy, which happens a lot'

The quality of sleep when offshore is perceived by workers as being of a lower quality in comparison with sleep in the leave duration. Evening tiredness worsens as time spent offshore increases. Time spent sleeping decreases, leaving employees feeling more tired when waking (Riethmeister et al., 2019). As employees spend their off-shift time based at the facility, the stressors remain present even during downtime. Confined spaces, noise and vibration, ocean conditions and ongoing production can still affect quality of sleep (Parkes, 2017). While all participants stated they work 12-hour shifts, it is not unusual for shifts to extend into overtime, meaning they are regularly working longer than 12 hours per day (Akerstedt & Wright, 2009). P21 explained:

'I know they say they're doing 12 hours, but you don't, you know. Inevitably an offshore worker on the platform, one FPSO I was on, I was up at anywhere between 3:00 and 4:00 and working till 10 at night. You know, you're getting 7 hours, 6 to 7 hours downtime a day. And you put that over a three-week period, you're doing far and above what anyone else does, but you have to because you gotta stay safe'.

For night shift workers, a period of between five and six days is required to fully adapt to the routine, during which time employees can expect to experience deficiencies of sleep quality during their downtime after work and tiredness during working hours (Harris et al., 2010). Two participants (P8 and P12) made use of sleeping pills to regulate sleeping around shift changes, which is not surprising considering that night shift workers are found to have higher rates of sleep disorders (Cousin et al., 2022; Ganesan et al., 2019; Tucker et al., 2021; Yazdi et al., 2014), and are at increased risk of utilising sleep medication (Tucker et al., 2021). Shift workers in the remote mining industry have a risk prevalence of 31% for sleep apnea and 44% for shiftwork disorder, according to Maisey et al. (2022) and were found to have a much higher prevalence of utilising tranquilisers or sleeping pills in Parker et al.'s (2018) study of FIFO workers (17.3% of participants compared to 4.4% of the benchmark group in the study). Meanwhile, offshore workers on day shift tend to enjoy better quality of sleep, longer duration of sleep and reduced sleep issues such as being unable to fall or remain asleep (Parkes, 1999).

In Harris et al.'s (2010) study of Norwegian offshore oil employees, an increase in the number of night shifts worked resulted in a prolonged return to baseline levels of cortisol. In fact, for workers who had completed two weeks of night shift, cortisol levels had not displayed a return to circadian baseline levels within one week. Shift work is also strongly linked to specific cancer types, such as prostate cancer (Flynn-Evans et al., 2013). Although changes to circadian rhythms have been implicated in other health conditions such as neurocognitive and cardiometabolic disorders and also in poor economic and social outcomes (Haaramo et al., 2013; Sofi et al., 2014, cited in Cousin et al., 2022), using sleeping pills to address lack of sleep or disrupted sleep cycles may exacerbate the condition, missing the root cause of the problem which could be better addressed by psychotherapy or behavioural therapy (Cousin et al., 2022).

Living conditions

For others, while interpersonal connections were favourable, living conditions such as small, cramped living quarters sometimes resulted in a strain on relationships, reflecting Sutherland and Cooper's (1996) finding:

'So I've worked on some vessels where everyone might be nice people, but they're just crammed in such a small environment. No one has their own space, and then it just creates friction and then that can lead to a hostile work environment in the end, just from people getting on each other's nerves. But then for weeks and weeks and it's constant and it just builds up' (P11).

Small and confined spaces extend beyond the accommodation:

'But yeah, this vessel - 2 people to a room and the accommodation's very small, the gym's very small even though it's well stocked and so you can't get any space to yourself, like just a tiny piece is quite hard and that's very challenging and so then off the back of that when you do get that room to yourself which happens so infrequently, but if you get a night to yourself like, you just don't tell anybody and just go back to your room and read a book or you don't have to worry about anybody, that's the hardest part is just how close quarters it is all the time' (P4).

Close confines, shared accommodation and no time alone were all related factors and P3, P4 and P6 all identified their shared accommodation as main stressors offshore. A lack of private space and time alone were issues for P3, P4 P6 and P11, a similar finding in Mette et al.'s (2018) study on offshore wind workers, which is undoubtedly related to cabin-sharing (Parkes, 1992). As Mette et al. (2017) state., limited working and living space makes it difficult for employees to separate work-life domains, increasing the risk of task disengagement, an established factor in increased strain (Sonnentag & Fritz, 2015), whereas being able to detach from work is positively associated with task performance and physical and mental health (Wendsche & Lohmann-Haislah, 2017). High workloads, a common feature of offshore employment (Brooks & Greenberg, 2022), make it even more difficult to detach from work (Mette et al., 2018). Furthermore, the need for privacy reflects both the difficulty of cabin sharing and lack of quiet areas (Mette et al., 2018; Sutherland & Cooper, 1996), an issue raised by several participants. For example, P18 said:

'That environment where you just you haven't got somewhere to go of a night, like you're sharing your cabin with another person, the mess room is full, it's quite confined living space. You go to the gym at any particular time, it's only a small gym, there's any number of people that are there that are climbing over the top of each other'.

Similar results emerged in Mette et al.'s (2017) study of offshore workers, where participants criticised the lack of sport and exercise facilities. Gyms were either not available, too small or inadequately equipped (Mette et al., 2017), a common theme in the interviews (P4, P6, P11, P18, P21, P24).

Further overcrowding in other areas of the offshore installation was identified by several participants. The mess room is extremely small, with limited seating for meals. This ‘*lack of real estate*’ (P18) in other areas exacerbates other stressors offshore (Parkes, 2011) and has significant negative impacts on work engagement (Evans & Stecker, 2004), tolerance for new team members (Parkes, 2011) and perseverance with difficult tasks (Evans & Stecker, 2004). A lack of privacy also diminishes perceived control and escalates interpersonal tensions (Parkes, 2011).

To improve detachment from work, Mette et al. (2018) identified the ability to withdraw from the work environment. However, this is difficult when workers must share a cabin with others on the facility. Permanent accommodation improves mental wellbeing (Parker et al., 2017), yet on some facilities employees are required to pack their belongings and move out at the end of their shift:

‘We’ve got lockers in your room and stuff like that. But at the end of your shift, we pack everything up into a bag and put it into storage in another room. And so the next person can come in and use the cupboards and drawers. But it’s not like you’ll ever come back into exactly the same room where you’ve got all your stuff. Yeah, it’s a bit of a transient lifestyle. You bring your bag in, unpack and at the end of your... yeah, you hitch your, you pack everything up again. Like a swagman’ (P8).

Conversely, some participants raised the issue of lack of entertainment and social events offshore. Social get-togethers after work finishes, even if that consists of watching television together, helped employees to switch off from work, as well as providing a home comfort (Mette et al., 2018).

Furthermore, social activities act as a distraction from work (Cropley et al., 2015; Mojza et al., 2010, 2011; ten Brummelhuis & Bakker, 2012, cited in Wendsche & Lohmann-Haislah, 2017), strengthen interpersonal relationships (Brooks & Greenberg, 2022), break the monotony of daily routine (Saxinger, 2021) and decrease loneliness and boredom levels in relationships (Brooks & Greenberg, 2022). P12 identified working with the same people for weeks on end as well as no social scene as being an environmental stressor, although these two factors present limited opportunities to interact with a range of people or to take part in a variety of activities and may point to the existence of the extraversion trait in the individual, which is manifested as amiability, assertiveness, activeness and cheerfulness (McCrae & Costa, 1987). The employee explained that making calls was difficult, but stated that there have been improvements in the Wi-Fi connection, yet this appears to be a double-edged sword:

'We've got Wi-Fi on every deck now, so that that helps, but it also it's also had a reverse effect where everyone just goes to their cabins and there's, so the social scene on the boat's not as good as it used to be, because everyone just goes off to their cabins and plays on their phones. Some swings are worse than others like that. But this one I'm on now is pretty good. I've got a few friends on there. So the time away, I suppose that just that with the same people, sometimes you don't get along with everyone or you know, apart from that, yeah, the absence of just the social, the society, I suppose'.

Apart from combatting loneliness and boredom when offshore, social events may also improve and promote interpersonal relationships (Brooks & Greenberg, 2022). Furthermore, Sampson and Ellis (2021) reported that social events were identified as things which made seafarers the happiest while they were on board. P21 fondly recalled a function where employees had been provided with a barbecue, a band, a few beers and a 'Great Shave' to raise money. Also provided by the organisation were team sports such as bowls, cricket and soccer, with cycling and a marathon club.

Likewise, P6 was disappointed with the lack of social avenues for workers offshore. Again, the provision of Wi-Fi in the mess room had resulted in a lack of interaction between colleagues:

'If you wound the clock back five years ago before Wi-Fi was put through, there'd be laughter and talking at breakfast, lunch, dinner and social interaction, and I'll sum up one of my mates there, [name]. He goes 'look at this, the exam's in progress'. So you got four people at a mess room table, you know, finished their food or whatever, and they got their heads down, they're sitting there like this, going through their phone. It looks like they're doing an exam in high school, you know, no one talking. And it's all, yeah, I hate it. I really hate it. Wi-Fi. I mean, I don't think you'd run the argument that Wi-Fi isn't gonna improve anything, cause people would jump up and down, but it's definitely had an impact and people are here, but they're not there? They're on their phone any minute they can'.

Apart from discouraging interaction between employees, internet usage can serve to remind workers offshore of what they are missing:

'I don't think people on their phones looking at everyone else's lives when you're away and 'Oh I wish I was doing that, I wish I was doing this'. I don't think that helps, to be honest. I think that adds to it... I turn my social media off when I go to sea. I deleted my Instagram and everything because otherwise I sit there gawking at bloody what everyone else is doing and it makes me miserable' (P12).

For employees working away from family and friends, the feeling of missing out may result in feelings of depression and anxiety (Mette et al., 2017). Feeling inadequate about life achievements as a result of social comparison has emerged as a common theme in the past decade. Social comparison acts as a mediator in the relationship between symptoms of

depression and use of Facebook (Steers et al., 2014). Making comparisons to strangers on social media affects wellbeing and the more ‘strangers as friends’ people have, the more likely they are to perceive others as leading better lives (Chou & Edge, 2012). Research shows that limiting social media is associated with a decrease in loneliness and depression (Hunt et al., 2018). It is common for workers to isolate themselves by focusing their attention on their phones (P12), even within groups, for example at mealtimes (P6). Providing collective recreational activities and allowing adequate rest time can facilitate social support and create feelings of unity (Sampson & Ellis, 2021), at the same time steering individuals away from social media in favour of face-to-face social interaction.

As well as providing options for workers to socialise, exercise is a well-established factor in preventing poor mental health and maintaining psychological wellbeing. Higher levels of employee morale, job satisfaction and increased productivity for workers who were informed about the advantages of a good diet and adequate exercise were found by Cotton (2006). In Mette et al.’s (2018) study, participants acknowledged the value of exercise in managing job demands. Likewise:

‘I think obviously, social things that we set up on board like, I’ll get on to that, I suppose, but definitely exercise. And having like... they used to pre-COVID, and obviously that was cut down after it, have a fitness coordinator come out in segments and run classes and do yoga. And you know, whoever wanted to turn up would turn up. We used to have pre start stretching on the Heli deck and you know it was stretching, obviously to warm your body up, but it also basically sort of coincided with the sun coming up, so you’d be up on the Heli deck, everybody’s stretched, do their thing. And you know it did create a bit of unity and also send you off into the day feeling well?’ (P6).

The type of bright daylight which occurs in the morning signals the body to suppress the production of melatonin, which is eventually metabolised for use in falling asleep in the evenings (Mead, 2008). Exposure to morning sunlight will increase both serotonin (Lambert et al., 2002) and cortisol, which is healthy in small amounts (Mead, 2008). Because serotonin is a precursory factor in the production of melatonin, it is vital in the regulation process of sleep and wake cycles (Lambert et al., 2002). High levels of morning light have been linked to a reduction in sleep onset latency, particularly during winter months, as well as an increase in sleep quality and a reduction in depression (Figueiro et al., 2017).

Targeted exercise interventions along with behaviour modification treatment significantly decreased the depression scores of participants in Atlantis et al.’s (2004) study. Montero-Marín et al.’s (2013) 10-minute stretching program for a duration of 3 months resulted in moderate

effects on the anxiety levels of logistic workers, moderately high effects for physical pain and moderate effects for both general and mental health. In other words, the program reduced anxiety, pain and fatigue whilst increasing both mental and general health as well as flexibility and vitality, making it an effective and inexpensive wellbeing intervention. Increased flexibility was also an outcome of Moore's (1998) workplace stretching program. Participants' posture was enhanced, and improvements were found in the flexibility of joints and extensibility of muscles. Reduction of inflammation risk and stress were additional favourable outcomes of the program. Moreover, no further incidences of musculoskeletal injury occurred during the program's duration.

Yoga interventions in the workplace are another option which shows encouraging results. Shohani et al. (2018) found that yoga effectively decreases stress, depression and anxiety for women. Likewise, mood improvements and anxiety reduction resulted from a 12-week yoga program in Streeter et al.'s (2010) study. Similarly, the beneficial effects of stretching have been noted to reduce the risk of discomfort and increase pain threshold (da Costa et al., 2005). P9's workplace implemented a 5–10-minute stretch before work, which complimented their time at the gym in the early morning. Relaxation techniques aim to reduce the physiological and psychological arousal felt in the presence of sources of stress. Relaxation training promotes a sense of personal mastery, decreased anxiety and tension and an increase in the feeling of wellbeing. Physically, there is a decrease in blood pressure, stomach acid, cholesterol detected in the blood, muscle tension and heart rate (Sutherland & Cooper, 1996).

Unfortunately, P6 noted that since the pandemic began, fitness classes, yoga and pre-start stretching had been discontinued. Stretching reduces pain and impairment, increases endurance and muscle flexibility (Gasibat et al., 2017) and has shown to result in a significant decrease in injuries and time-off requests after implementation of an 8-minute stretching program (Aje et al., 2018). Warming up prior to work on the Heli deck whilst the sun came up created unity and a sense of well-being (P6). Sunlight, and therefore increased exposure to melatonin, increases reaction time, at least in the case of changing from night shifts to day shifts. Several of these factors identified in environmental stressors are also mentioned as responses to other questions. For example, accommodation type was also a response to the question of what was perceived to be the main mental health hazards offshore.

5.3.6 *What do you perceive to be the main work-related mental health hazards?*

Due to the large number of factors identified during interview, this section has been organised into six major hazard themes; employment factors, management factors, work environment factors, company related factors, work demands factors and home life factors.

Employment factors

The insecure nature of casual work emerged as a major psychosocial hazard for offshore oil and gas employees. Table 5.5 shows the main types of employment related hazards for employees.

Table 5.5

Employment factors as perceived mental health hazards for offshore oil and gas workers

Hazard	Causes/examples
Employment	
Casualisation	Not being called back if you speak up (P13)
Insecure work	Voting on work issues while offshore and not technically employed (P20) Insecure finances (P11) Not being able to plan (P20). Shift changes at short notice (P11, P20)

Casualisation and insecurity of work

Atypical work, which includes casual employment, is often referred to as ‘precarious’ (Richardson et al., 2012, p. 558) and suggests unfavourable or disadvantageous conditions. When workers are employed casually, they are automatically exposed to the insecurity that this type of work brings. Further concerns include high work demands and powerlessness (Richardson et al., 2012). When work is of a transient nature, it becomes a source of stress for employees (Matthews et al., 2021). In the COSH Code of Practice (DMIRS, 2022), casual employment is listed under insecure work as a workplace psychosocial hazard and puts employees at risk of experiencing stress due to feeling vulnerable (Colquhoun et al., 2016). Research clearly shows that casual workers fear the loss of their job (P4; Quinlan, 2013). There is a general view that there is a reluctance to make casual workers permanent in the offshore oil and gas industry. Employees can have a casual work status for over ten years, yet as soon as they speak up they do not receive any further calls for work, which reflects focus group findings.

Seafarers in Sampson et al.'s (2019) study were openly fearful about speaking up regarding what they felt was right or safe. Casual workers in Underhill and Quinlan's (2011) study had a much higher rate of dismissal than permanent employees after injury and there is also evidence that casual workers are hesitant to report minor injuries and so continue to work until they are incapable of doing so (Underhill & Quinlan, 2011). Conversations with offshore workers in this study support those findings, as P10, a casual worker, disclosed that a near-miss accident was not reported (discussed under work environment factors). Reporting enables the analysis of accidents and near-misses in order to provide information on trends, create opportunities to improve on safety and increase positive attitudes around safety (Kongsvik et al., 2012).

Bullying from HR and line managers and threats from people who have the power to not reemploy people are a major issue (P13). Milliken et al. (2003) found a similar pattern in their interviews with employees in a wide range of industries, reporting that one participant who had raised an issue was labelled a troublemaker and told to be quiet. As a consequence, and due to fears over job loss, the employee did not persevere with the issue and went into 'detached mode' (p. 1453). To effectively fulfil job roles, employees must be provided with support and cooperation, which is unlikely if interpersonal relationships are strained. Considering that collaborative workplaces require exchanges of information, and that speaking up can damage perceived credibility and thus impact cooperation, employees may experience exclusion from interpersonal connections within the workplace and this may eventually undermine performance at work in a way that is difficult to reverse (Milliken et al, 2003).

The flow of information for casual workers may be weaker due to the association of work insecurity with work disorganisation (Quinlan, 2013), leading to insufficient resources to enable workers to perform their job properly (DMIRS, 2022). Along with high work demands and role conflict, precarious work arrangements form part of a larger picture in relation to workplace bullying and harassment (Österman & Boström, 2022). The insecurity of casual work increases the risk of developing mental distress and severe symptoms of depression, particularly in men (Andrea et al., 2009). Even with recent changes in law, casual workers offshore are unprotected because they must work for an employer for over 12 months before they are eligible to be offered permanent employment (Fair Work Ombudsman, 2023). P12 had been with the same company for nine years, yet retained a casual work status, albeit 'permanent casual'. They expressed their wish to be made permanent, revealing that they had requested permanency from the organisation a few days prior to the interview. However, the company

rejected the request based on the fact that the employee was working on a vessel at the time. Being on a vessel which is not on a contract for over twelve months means that employees are unable to be made permanent and the employee had had to consider a way to find further work:

'I'll probably just go to another boat so I'm still working for them, but that's how they get around it, and it is hard because it is an up and down industry. So I kind of get it why they want a lot of casuals, but it's still hard to run your life when you're only a casual employee for so long and even though you're working all the time, you just don't have that security. So it plays on your mind, it used to play on my mind a lot more, especially when it was quiet. You know, you'd be stressing out if you're going back, you'd be waiting for the e-mail and you couldn't plan your life. And that was, it was difficult'

Stress caused by refusal to make employment permanent was exacerbated by the attempted use of ministerial powers via the repeal of the Migration Amendment (Offshore Resources Activity) Act 2013, which 'removed the requirement for foreign workers to hold a visa when they participate in, or support, offshore resource activities taken to be in the migration zone' (Parliament of Australia, 2014):

'So yeah, from an employment perspective, if the government is trying to legislate employment law away so it's not applied, it's a stressful thing, you think OK well I've been working at sea for the better part of 15+ years, [inaudible] going to have to do some training, or where's the next lot of employment coming through, not only for myself but for a few thousand other people and part of... the other thing around whatever people's particular views on how the world should see or fit around that, but yeah, that created a large amount of stress and anxiety' (P13)

Being unable to plan was a negative consequence of the insecure nature of casual work offshore. P20 explained that holidays were unable to be booked and family plans were impossible due to not knowing their future schedule and that it was one of the most stressful things for them. Shifts were likely to change, there may be a longer gap between work and they exist in a kind of limbo until the next position starts. Similar issues were present for P11:

'So you never know that you're gonna be working, like you could get flights, you get told you're going here, you're going there. But until you're, like, standing on the vessel, you don't really know for certain that you're gonna have that work. So I guess it's very insecure with your finances and I suppose that it's from the management to a degree, like it may not be the person on the other end of the phone that's doing that intentionally, but it's more broader management of organization that that happens' (P11).

In workplaces where the majority of employees are casual, workers face similar issues to those that labour hire employees face. Existing enterprise agreements have ensured that those employed under labour hire contracts do not have access to the same pay and conditions and

are also at risk of the practice of firing and rehiring. Using labour hire undermines the working conditions, safety obligations and pay that the AWU helped to acquire. The AWU reported that workers received eleventh-hour notice of their shifts, sometimes on the same day, making management of everyday responsibilities unlikely (AWU, 2021).

P10 echoed the stress caused by lack of a stable income:

‘Yeah, I would say there can be uncertainty about when the next sort of work is coming. And sometimes the lack of clarity and communication from the management side of it, so that can be pretty stressful not knowing what, you know, if anything's locked in, if I'm gonna have enough money in the future and stuff like that’ (P10)

Undoubtedly, with a casual work status there is uncertainty regarding finances. With inconsistent income, casual workers are likely to experience ongoing and long-term stress and anxiety around managing their finances (Quinlan, 2013).

Management and employee factors

Management and employee actions include all factors affected by the behaviour, activities and processes of an organisation’s management and its employees. This considers any issues arising from the home life of workers as a stressor that affects them when they are offshore. Other factors which emerged were a lack of attention and awareness, the difficulty of co-existing with others, the workplace culture, stress, stigma and help seeking behaviours. These are shown in table 5.6:

Table 5.6

Management and employee factors as perceived mental health hazards for offshore oil and gas workers

Hazard	Causes/examples
Management and employee actions	
Inattention and lack of awareness	Inattention during high-risk tasks which require a high level of precision can result in a significant injury or catastrophic outcome (P1)
Other people	Too many different egos results in power struggles and affects what information is filtered from employees to managers (P4)
Workplace culture	People won't step up and voice their concerns or injuries if there is not an open reporting culture (P22), hard to spend a long time with people you do not like (P16)
Regular contact with family	Stress relating to communicating with children at home (P17)
Micromanaging	Control and monitoring over food options (P20) Micromanaging (P28)
Help seeking behaviours	Older workers not open to seeking help (P21)
Hypocritical management	Not providing means to follow advice (P2)
Management style	Intimidatory management style (P6) Unfriendly/unsupportive/reproachful manager (P29)

Inattention and lack of awareness

Riethmeister et al. (2018) reported an increase in sleepiness in the morning for offshore oil and gas workers. There was also a decrease in time spent in bed and total time sleeping when offshore. For employees who work consecutive night shifts, there is an accumulation of sleep loss, which can affect alertness levels (Chellappa et al., 2019; Maisey et al., 2022). An accumulation of sleep loss will present as fatigue even during the day and when no significant circadian impulse to sleep is present (Riethmeister et al., 2019).

Overall alertness for all working hours was found to be 75% by Maisey et al. (2022), who also noted that there was 5 times the likelihood of lapses in attention for FIFO shift workers, resulting in lower levels of alertness and longer reaction times, in comparison to a worker who had sufficient rest. Night work in particular presents challenges to sleep patterns and on consecutive nights, alertness levels decline by 13% (Maisey et al., 2022). In fact, between 6.01pm and 05.59am, Rodrigues et al. (2001) found accident risk was 51% higher than between

6am and 6pm. Sleep deprivation was found to accumulate over 7 days shifts and 7 night shifts (Maisey et al., 2022), leaving workers with a sleep deficit of 13 hours and a 20% decline in alertness levels, leading to a possible decrease in performance at night.

As a further concern, Parkes and Swash's (2000) analysis revealed that night shift work was associated with considerably higher rates of serious accidents, particularly when shifts lasted longer than 12 hours and the swing extended beyond two weeks offshore. Inattention due to reduced levels of awareness while carrying out tasks at work increases accident risk (Folkard & Lombardi, 2006). Mental alertness is an inherent facet of a healthy employee (Pescud et al., 2015) and less than 90% alertness is associated with increasing risk of accident as a consequence of human error, with further increases as alertness levels fall beneath 70% (Hursh et al., 2006). Besides associations with accidents, anxiety about making a mistake was the main mental health hazard according to P1:

'Inattention to the task and lack of awareness is what I see as the main work-related mental health hazards. When an employee has issues at home, this can often preoccupy their mind leading to distraction at work. Particularly during high-risk work where precision is required, this can have a profound effect on their concentration levels. This lack of attention can result in a significant injury particularly in the process driven environment of the offshore industry where a mistake could lead to a catastrophic outcome'.

Attention lapses due to sleep deficits can occur in response to either sleep deprivation or sleep restriction. Sleep deprivation, whereby sleep is eliminated for at least one night, is less common than sleep restriction (or partial sleep deprivation) in the general population (Alhola & Polo-Kantola, 2007) and it is more likely that offshore workers will experience sleep restriction over several nights or weeks rather than a total loss of sleep, particularly when they work overtime (Parkes, 2017). A decrease in working memory, vigilance and measures of visual and spatial awareness is a firmly established outcome of sleep deprivation. There are also negative effects on auditory attention and reaction time (Alhola & Polo-Kantola, 2007).

While one night of sleep restriction did not impact basic addition tasks in Ikegami et al.'s (2009) study, higher-order cognition functions were the most affected the following day. Furthermore, for these functions to return to baseline levels, two recovery sleep events were needed. This was also the case for fatigue levels and confusion, which were both scales of Profile of Mood States (POMS). However, Thompson (2019) found that impairments due to

fatigue began after a single 12-hour shift. Even if cognitive impairments did not appear after one night of sleep deprivation, the cumulative effects of sleep impairment over several nights and weeks compromises cognitive tasks and recovery and both acute sleep loss and cumulative sleep restriction reduce individual perceptions of alertness and sustained attention (Chellappa et al., 2019). Fatigue is negatively correlated with work situation awareness, which in turn materialises as unsafe work behaviours, increasing the risk of accidents, particularly when stress is present (Sneddon et al., 2013). Geiger-Brown et al. (2012) found that nurses working nights were more tired at the end of the shift than at the start, which lends weight to the Chellappa et al. (2019) and Maisey et al. (2022) findings.

Other people

Given that offshore employees must live and work together for weeks on end, maintaining good interpersonal relationships is vital for teamwork and social functioning. Interpersonal conflict creates stress and is detrimental to mental wellbeing, whereas favourable interpersonal relationships within teams are more likely when there is a lack of interpersonal and task-related conflicts (Parker et al., 2018). The provision of a space to retreat from others and from environmental stressors such as noise can help lower the likelihood of interpersonal conflict (Landon et al., 2019).

'We're human beings, but when somebody is talking about a group of people in either a racist fashion or you know what I mean, it could be racism, it could be disabled people, it could be people of the opposite sex. It could be an opinion on what they think of something that's going on in the news, religion. It could be anything. It's, and like I said, it's only a small amount of people that will voice those opinions and use derogatory language to describe what they're talking about and they do it very regularly. If it's just a one-off conversation, I can remove myself from that, it's easy. I go into the galley or I go upstairs or whatever, but when it's constant with somebody, it just wears you out' (P20).

While it is inevitable that personal views and opinions will vary and at times be inconsistent across work settings, in this case there appears to be a sort of resistance to diversity. A cluster of male employees with old-fashioned views still exist, however a much greater number are working towards a more respectful working environment (Western Mine Workers Alliance, 2021). Entrenched in the common language of P20's co-worker is the unmistakable relevance of the challenge to the notion of what constitutes conventional roles (Austin, 2006). Similar issues were reported by P29 regarding the personality of co-workers, where those with English as a second language were targeted. In terms of adjustment to the social environment,

international workers and minority group employees may find that there are barriers in typical male-dominated environments (Vojnovic et al., 2014).

Workplace culture

Workplace culture, or rather safety culture, relies on its workers to have a degree of knowledge about safety, which is facilitated through feedback via the reporting processes within an organisation, enabling improvements in safety behaviours (Kongsvik et al., 2012). Reporting also allows for the development of practical workplace interventions to strengthen safety culture Ek et al., 2014). Open communication between colleagues, feedback from reported incidents, safety training and training which proactively identifies risks all have associations with higher levels of reporting (Oltedal & McArthur, 2011). Supervisors who communicate openly and honestly and give clear outlines as to expected behaviours have a considerable influence on positive mental health:

‘If the manager communicates openly, has clear expectations and everyone's aligned on what the expectations and deliverables are for the project, I think that can go a long way towards mental health, positive mental health and I think the most important thing is not having a blame culture if you want, let's call it that, where if you make a mistake, you get thrown under the bus. Now it becomes a matter of alright, let's discuss what happened. How can we do better? Trying to understand why what happened happened? How it can be prevented, that sort of that sort of approach? I find that's a very, very positive approach’ (P27)

Clear information and instructions enable the safe running of a facility. Open communication will encourage the discussion of safety issues, leading to insights into safety processes and any lapses, weaknesses or needs for improvement. When asked if the culture of the workplace affects mental health, P22 replied:

‘Of course it does. Yeah, 100%, you know, if it's not an open reporting culture then, for sure people won't step up and voice their concerns or injuries’.

Another factor influencing communication and reporting is work aspects such as mental fatigue, level of managerial support and perceptions of team cooperation (Oltedal & McArthur, 2011).

Regular contact with family

One of the major sources of stress for offshore employees is being unable to communicate with family onshore. Staying in regular contact is an important coping strategy (Mette et al., 2019) and having the capability to communicate with family could be perceived as a job resource, whereas restricted means of communication could act as a job demand (Vojnovic et al., 2014). As access to reliable internet is a factor in lowering psychological risk, providing adequate facilities is vital, especially when employees have children:

‘Stress. Stress. You know, I have a young son who is 9 years old, so I deal with a fair amount of anxiety relating to him and his ability to communicate regularly with me, so yes stress and anxiety are probably the main one’ (P17)

A large section of the offshore oil and gas workforce is comprised of young males (Valadez & Jeremijenko, 2022). As young adults experience higher rates of mental health problems (Rodgers et al., 2021), young oil and gas employees are more at risk of depression and anxiety (Valadez & Jeremijenko, 2022). While the majority of participants in this study did not fall into this age group, respondents substantiated the generational gap in relation to help-seeking, disclosure and stigmatising attitudes for mental health conditions. P16, a young graduate engineer, explained an incident that affected whether they might seek help in the future:

‘I was part of a situation where a girl that went just like me, she wasn't feeling comfortable anymore, like that environment offshore? And she asked for the people there to get out of the rig and they actually were really supporting, which was good to see. They booked a chopper for the next day for her to leave the rig. And that was all good. But then, because I was with them in that office, I heard the comments after. They just didn't like it that much because there were comments about how we managed to get [inaudible]... actually want to be here? We're spending money on them and things like that, so that will make that... like I want to leave. Yeah, they will support me. But then they're going to say things about me’.

Micromanaging

A tendency for management to micromanage employees was revealed in response to several questions. P20 explained that they held food science and teaching qualifications but were treated similar to someone with no experience:

‘We're all qualified to do our jobs. And the micromanagement is getting out of control in my opinion and not just in my department but in other departments too yeah, they get around it. We all get around it one way or another. But it just makes it stressful. We just wanna go there and do our jobs, you know, and do them safely. Obviously, safety is a big issue. But to micromanage everybody's diets I think is beyond... that's getting to become a control freak I think really’ ... ‘I don't know how their computer system

works it out, but I'm guessing it's on weight and the amount of people that they can get all this data from, and if you've ordered let's say, I don't know I ordered 40 kilos of pork for example, then that would show up that... Oh my God, that means in a 35-day period they're gonna have had a kilo of fat each you know. And I think that's sort of, that's a very random way to explain it, but that's the easiest way to explain I think how their system's working. They're talking about our health. But yet they cut the vegetables because we all know how expensive they are at the moment' (P20)

Monitoring of employees can result in the feeling that privacy has been eroded and is associated with aggression towards supervisors, particularly when activities are timed, such as lunch and work breaks (P22), or where there are repeated evaluations of employee performance (Greenberg & Barling, 1999). Micromanaging has also been linked to low morale in the workplace, reduced productivity and a high rate of employee turnover (Collins & Collins, 2002; Irani-Williams et al., 2021). Supervisors who micromanage face the risk of stifling creativity (Irani-Williams et al., 2021), minimising the potential for growth and development within an organisation, as well as placing themselves at risk of burnout. Furthermore, it is a common factor in why employees leave their jobs (Collins & Collins 2002). Zimmerman (2008) connected low emotional stability (neuroticism) with the intention for workers to quit their job for motives besides job dissatisfaction or poor job performance. High levels of openness to experience in employees were associated with spontaneous quitting, indicating that there may be an underlying desire to explore new experiences and opportunities. Individuals with high levels of openness are creative, which may be repressed by supervisors who micromanage (Irani-Williams et al., 2021).

On the other hand, highly agreeable employees are less likely to leave their employment due to their tendency to form positive interpersonal relationships with their colleagues and to view their workplace more positively (Zimmerman, 2008). It is also suggested that Type A personalities, who are distinguished by irritability, impatience, achievement striving and job involvement (Parkes, 1998) are most likely to exhibit behaviour consistent with micromanaging due to insecurity and lack of trust in their subordinates (White, Jr., 2010), and to be involved in accidents (Sutherland & Cooper, 1991). Where there is a lack of trust in employees, it is revealed in dysfunctional management styles. Asked about what constituted a poor management style, P28 stated:

'I suppose micromanagement is one that is not good. Because you're not trusting people'.

Help seeking behaviours

Interviews revealed a distinct difference in age-related attitudes and behaviours towards mental health. This was most evident when considering how open individuals are to discussing mental health, including asking for help:

‘You know that there's a lot of people that, probably plus 40 I'm gonna say, that have been around for a while that are less likely to call for help. However, what I'm saying now is the young blokes are actually saying, look, I need to go and talk to someone and they come back and they discuss it with some of the older guys’ (P21)

This is consistent with findings that younger males would be more inclined to look for help (Matthews et al., 2021) and access both official and informal sources of support (Vojnovic et al., 2014). This is a reassuring finding, particularly as younger offshore workers are at increased risk of certain mental health disorders (Valadez & Jeremijenko, 2022) and because they were more likely to have lost jobs in the COVID-19 pandemic (Asare, 2021). On the contrary, accessing any kind of support, formal or otherwise, was less likely for individuals over 50 years old. It is certainly possible that mental health literacy has become such a commonplace part of life that help-seeking is now seen as a natural and obvious solution. Moreover, those men in the study who had sons were actively trying to educate them about asking for help.

Hypocritical management

It is one thing to impart advice to employees based on professional advice, but then not provide the means to act on the advice and implement any suggestions made.

‘The company will come out and say make sure you're keeping... because we're often stuck in Western Australia for long periods of time so I'm from the East coast... and they'll come out and say make sure you keep in touch with your family and video conference them. So how can you do that if they haven't provided the mechanisms to do it? Yeah, they're very hypocritical in a lot of things, that management come out in saying, especially around mental health, they don't... they talk a lot but they don't do much’ (P2)

Similar findings came from Gardner et al.'s (2018) research of FIFO workers, discovering that workers felt their employers were not supportive and prioritised production over employee wellbeing, providing the kind of support that was seen more as tokenism. Often, mental health is discussed at meetings and inductions but employers do not lead by example when workers present with mental health symptoms. Participants revealed to the authors that they felt

discouraged when attempting to negotiate work-related mental health problems, finding a lack of leniency from employers and little sympathy from people not engaged in fly-in, fly-out employment.

Work environment factors

The offshore working environment is inherently dangerous. Even a small lapse in concentration can bring about catastrophic events (P1). Poor mental health can affect alertness levels. In particular, depression can cause difficulty in focusing on tasks (Parker et al., 2018). Shift work is widely accepted to be associated with a decrease in alertness levels, thus have a detrimental effect on performance and safety at work (Harris et al., 2010; Saksvik et al., 2011). Stressors in the environment such as adverse weather conditions can heighten stress levels (Ding et al., 2016). Work environment factors as perceived mental health hazards are displayed in Table 5.7.

Table 5.7

Work environment factors as perceived mental health hazards for offshore oil and gas workers

Hazard	Causes/examples
Work environment	
Environment	Heat and humidity, noise, vibration (P1, P6-P9, P13, P16, P18-P20, P29)
High-risk environment	Small lapse in concentration or awareness can result in a fatality (P1) High-pressured work in an environment focused on production (P22)
Social isolation	Isolated from family (P5, P6, P9, P10, P12, P17, P21, P23, P24, P25) No social aspect of life (P11) Missing events at home (P5, P9, P12, P21)

Environment

For the purpose of this study, the work environment covers factors such as heat, humidity, noise and vibration. Climatic intensity, movement, and noise-related stressors together with the psychologically demanding and socially isolating environment causes anxiety and stress for offshore workers.

High-risk environment

A workplace which carries a high risk of traumatic events such as near-miss accidents (Nielsen et al., 2013b) was found by Rundmo (1992b). P10 explained the effect their near-miss accident had on their mental health and on the wellbeing of colleagues:

'I had a quite a big near miss, where it was quite close to me to potentially losing my life or having a serious injury. And sort of the full realization of it didn't set in for a few days. And I can tell it affected some of the team leaders around me since they were, probably should have seen it coming, so it was impactful for both me and them as it kind of set in.'

Being in the right frame of mind is important when working in such a high-risk environment. If there are lapses in concentration because of fatigue or unresolved issues at home (P1, P8) it can have disastrous consequences:

'I've seen it, you know, someone wasn't in the right frame of mind one day because we had a morning meeting and two guys luckily didn't get killed, but were close. And all because the guy's head wasn't in in the right spot. He operated a crane and whatnot. His head wasn't thinking straight and operated the crane in the wrong manner. And the headache block parted from the wire and narrowly missed two people. And you know, just mental health wasn't in the right game at the time. So yeah, from a cultural perspective there's, you know, make sure that people when they go to do a high-risk task they've got their thinking hat on and if people aren't in the right frame we try and, from a work perspective, try and make sure that people are in the right frame of mind when they're doing a high-risk task. As best as possible cause nothing's 100% I guess' (P13)

High workload can result in an increase in strain and a reduced coping ability when faced with dangerous conditions or events. When perceptions of job strain and risk, which can be considered aspects of workload, reflect actual working conditions and consequently affect individual responses to these situations, it is likely that the recorded number of workplace accidents and near-miss accidents will be affected (Rundmo, 1992b). Physical working conditions, including climatic factors, have a direct effect on the prevalence of reported accidents and near-miss accidents. In particular, poor working conditions increase the likelihood of injuries. Adverse weather events such as cyclones add further uncertainty to an already stressful job:

'It's pretty high pressure, you know when they all talk about perceived pressure and the like? But obviously if you're unable to disconnect with a CAT 5 cyclone coming toward you, and you're the only person on board that sort of operates that system, or has the understanding of that system, I found that pretty stressful. Especially given that the

company wouldn't maintain it as to how I would like to have it done but anytime we've sort of had blackouts and shut down, you know, unplanned shutdowns, things like that, obviously there's a fair bit of pressure on you to get it all going again, it's a couple of million dollars a day in lost production so, yeah, you definitely feel that' (P22)

Accidents and a wider culture of blame

On North Sea offshore facilities, workers often failed to report near misses and accidents due to power imbalances and a culture of blame (Collinson, 1999). Likewise, a blame culture lingers in organisational spaces, particularly when there is understaffing (P4) or where there are contractors and subcontractors:

'Definitely what I see within the contractor space is that there is a blame culture. But for some of these momentum organizations such as the one I work for, we definitely try and step in and try and influence this sort of this culture that's trying to be set and to ensure that we're not trying to blame people, we're trying to actually find out the root cause and the answers behind why people make those decisions. Definitely looking into the more human factors sense. What I see out there is that yes, from the contractor stance, there is a blame culture, but the more mature organisations are trying to step in and try and change that' (P26)

Incidentally, terms and conditions for offshore contract workers were traditionally inferior on North Sea installations, where contractors typically carried out the most dangerous work and were therefore at a higher risk of accidents. Collinson (1999) reported the existence of an 'us and them' culture (p. 588); inequalities that exist for contractors that do not for company employees. Divisions between contractors and employees from the company they are supplied to are still evident today:

'The leaders in that space are very much company-centric. But also too it's... I found with my last company, I thought it was more a vessel thing, but it's not, it's a [company name] thing, so it's very much 'I'll help you out if you're [company name], but if you're not, you've got no help mate'... 'I feel the whole vessel would be better if everybody was [company name]. Or everyone fell under that banner if it was [company name]'s job to look after all that sort of stuff. Then that would be inclusive. But at the moment it's not, so it's very much a... even though I'm core crew, I'm contractor core crew, so I'm not included in that banner, you know?' (P4)

In Collinson's (1999) research, blame permeated not only from management down to workers, but laterally, from main operators across to contractor companies, perhaps due to low trust levels. According to Moreland and Levine's general model of group socialisation (1982, cited in Moreland and Levine, 2002), as individuals enter groups, time dictates that their

commitment will increase, at least until a point where acceptance into the group is achieved. However, because contractors and casual workers have short-duration memberships to workplaces and therefore to the social groups within them, there may be a decreased level of trust between temporary and permanent group members.

Findings in the Moreland and Levine (2002) study indicated that there was an unwillingness on behalf of permanent employees to place trust in temporary workers due to their short-term positions. Trust that has developed between groups in the workplace may act as a safeguard against the emergence of a blame culture, as distrust is associated with competitiveness, poor behavioural outcomes in interpersonal relationships and poor performance, which all potentially encourage poor safety behaviours and may ultimately become mediators between accidents and distrust (Conchie & Donald, 2016). For instance, distrust which results in poor interpersonal relationships affects open communication around safety, meaning that any inadequacies in workplace safety remain overlooked, increasing the risk of accidents.

Engagement in work is a consequence of a strong manager-employee relationship that is focused on wellbeing and performance (Howell, 2017). When accidents occur, particularly where there has been injury or harm, there is a general propensity to assign blame where there is a lack of explanation for such an event. However, organisational factors should also be considered when reviewing the reasons for unsafe behaviours (Hopkins, 2006). While it is true that human error is a major contributor to the cause of incidents, with estimates that between 70 and 100 percent of incidents are due to human error, attributing blame to individuals ensures that solutions will be solely at the individual level, while neglecting to consider the underlying factors in systems of work that may contribute towards incidents and accidents (NOPSEMA, 2021b). Blaming an individual is oversimplifying the factors involved in accidents. Human performance is usually part of a wider system, and this is no different when considering performance in the context of accidents in the workplace. Even the most experienced and skilled workers can make mistakes (DMIRS, 2023).

Because there are almost always antecedents to major occupational incidents, that is, signs that there are risks that are not controlled (Turner, 1978), the reporting of hazards or near-misses is particularly important for preventing further incidents. The information gathered from accidents and incidents provides a valuable insight into their root causes and determinants and can be taken into consideration when identifying hazards in the workplace (NOPSEMA,

2020c). Sharing near-miss accidents with managers and colleagues, known as ‘positive error management’ (Taylor Moore et al., 2013, p. 102), facilitates learning experiences and enables employees to comfortably discuss incidents. An open and encouraging relationship that features daily communication between supervisors and workers makes talking about safety easier (Taylor Moore et al., 2013). Continually improving an organisation’s learning culture around safety is crucial for the prevention of repeated incidents and accidents (DMIRS, 2023).

Organisational learning requires leadership commitment and responses that demonstrate appropriate attitudes and behaviours is crucial since employees are guided by the examples set by managers and their immediate working environment (DMIRS, 2023). If supervisors are actively discouraging the reporting of accidents or near-misses, or even dismissing reports as an unnecessary interruption to everyday processes, this shows obvious neglect towards a commitment to safety behaviours (Hopkins, 2006). The reporting of accidents is to be encouraged. Assuring that the workplace and organisation has a culture that is fair and ‘no-blame’ will encourage employees to report incidents and foster improvement within the organisation (DMIRS, 2023).

Social isolation

Geographical isolation is a typical characteristic of offshore work, no matter the type of facility. However, when there is added physical and social isolation, particularly confinement, adaptive capacity may be challenged (Décamps & Rosnet, 2005). Confinement in isolated environments affects both personal and interpersonal functioning, leading to exaggerated stress responses, increasing as roster duration lengthens (Landon et al, 2019), although Décamps & Rosnet (2005) described a reduction in social stress reactions after the midway point of the roster. Some participants in this study however typically described increasing difficulty as the swing went on, particularly the final week of a five-week roster (P12, P24).

In this respect, confinement suggests an absence of privacy rather than overcrowding, where small teams operate in isolation (Décamps & Rosnet, 2005). For this reason, Landon et al. (2019) suggests the sharing of mealtimes within communal spaces to promote team cohesion, enhance social ties and promote relaxation. While all types of exercise facilitates the reduction of stress, as a rule group exercise is more competitive in nature than individual exercise, which has additional benefits. However, the availability of provisions in terms of space and equipment must also be considered in such an extreme environment. While group activities reduce stress

(Landon et al., 2019), many participants pointed out the lack of exercise facilities as a consequence of confined spaces (P4, P6, P11, P18), which clearly acted as stressors.

Company-related factors

Provisions that the organisation provides to employees while offshore are wide-ranging, from the type or quality of accommodation or food, amount of space, social activities and communication facilities. Each of these has the potential to affect the mental wellbeing of offshore workers, particularly when there are several of these stressors present. Table 5.8 presents company-related stressors identified by participants.

Table 5.8

Company-related factors as perceived mental health hazards for offshore oil and gas workers

Hazard	Causes/examples
Company provisions/facilities	
Accommodation	Sharing a cabin with the same person you work with (P2, P18)
Confined space/No personal space	No individual space or freedom, can't get away from people (P23). Need own space and quiet time (P4)
No social events	No work-life balance offshore, nothing to do outside work hours. No socialising (P21), become like a robot (P11)
Poor internet	Lack of good communication, to be able to speak with families (P2, P11, P14, P17, P24, P29)
Quality of food	Food significantly effects morale (P11, P24, P28, P29)
Exercise facilities	Small or poorly equipped gym (P4, P6, P11, P18)
Helicopter travel	Constant use of more hazardous ways of transport, like helicopters (P19)

Accommodation

Sharing accommodation was one of the major themes which emerged from the analysis and was mentioned consistently throughout the interviews, particularly when participants were asked to identify environmental stressors. In particular, the need for privacy is not being met due to the sharing of cabins. Parkes (2011) stresses that privacy is especially important in areas where employees sleep. Parkes (2010) reveals that the majority of employees on Norwegian offshore facilities are sole occupants of cabins while off shift. Some workers have their own

accommodation and those who do share rooms are employees on opposing shifts. However, it is still common for offshore workers in Australia to be sharing cabins, working, and sleeping with the same co-workers, changing rooms between shifts (Henry et al., 2013), and ‘hot bedding’, a practice of using the same room and bed by workers on opposite shifts (Parker et al., 2018, p. 141).

Sometimes employees might work together all day and then share a cabin together at night (P2). Apart from the disruptions to sleep that sharing accommodation brings (Parkes, 2011; Velasco Garrido et al., 2018), it stretches personal relationships, creating interpersonal tensions (Collinson, 1998) and assists in the perception of the facility resembling an ‘institution’ (Collinson, 1998), albeit a short-term but recurrent experience (Collinson, 1999).

Enclosed space/lack of personal space

Enclosed space is undoubtedly a challenging factor for offshore workers and the reason for a lack of personal space. While enclosed spaces may not always have a high social density, the proximity of other people can generate conflict (Décamps & Rosnet, 2005). As P23 stated, *‘you can't really get away from people’*. Finding balance between obtaining some degree of privacy and fulfilling social support needs is a challenge offshore:

‘Yeah, and then you're like you wanna talk to somebody but you wanna have your own space as well you know, some quiet time’ (P4)

P18’s facility frequently operates at the maximum capacity of 64 people, making for a crowded living space. The gymnasium and television room have limited space and the mess room is frequently full (P2, P18), with limited provisions for eating:

‘...and again, the gymnasium, the original one was... you're given I think it's a 4m by 5m room and for 60 guys it's just ridiculous and the guys had to sort of push and fight and scream and scrap and get something set up outside in the open, you know. And the TV room's small, mess room – you'd be going in there and there's not enough tables, not enough seats for people so you have to wait for your meals’ (P2).

No social events

Social events create unity and a sense of community (Parker et al., 2018). A lack of social events was raised as an environmental factor but also as one of the main mental health hazards. Being on an island or platform with no social scene (P21) forfeits the opportunity to build social connections that are crucial to mental wellbeing and recovery, putting employees at risk of social isolation (Parker et al., 2018), loneliness and anxiety (Gardner et al., 2018):

‘There’s no socialising or you know, you just become like a robot. And you’re just going to work, sleep, eat, doing the same thing. You just kind of, it can grind you down a bit after a while’ (P11)

Ensuring ample social structure, making sure there are plenty of activities and providing good entertainment, Wi-Fi web access and good television was suggested by P21.

Poor internet

Having the ability to speak with family, partners and children is vital for offshore workers. Unreliable or intermittent internet coverage is found on many facilities. For P14, poor internet connection was identified as both an environmental stressor and as the main work-related mental health hazard. P16 stated that during their first time offshore there was no internet. Bearing in mind that this participant had less than five years’ experience in the offshore oil and gas industry, internet facilities appear to have been slow to arrive. P29 stated that there was no privacy around personal calls because they would have to speak to their family in the office due to a lack of internet provisions in supposedly more private areas such as cabins. Sometimes there is no internet at all (P16, P24).

Issues with phone and internet connection which affect the ability to communicate with family impact mental wellbeing negatively (P17). The internet drops out frequently (P18), in fact some interviews in this study were conducted while the participant was offshore and at times video was delayed and often froze or dropped out. The voice of the participant was occasionally inaudible and lagged in relation to the video and surplus noise was also an issue. Opportunities to communicate are an essential factor in supporting good mental health (Henry et al., 2013; Mette et al., 2017; Tynan et al., 2016) and have been associated with decreasing levels of depression and anxiety (Sampson & Ellis, 2021). Unfortunately for some employees offshore, being able to see their family while talking is still unattainable:

‘And just like the general internet, there’s just no way you can video... I don’t have small kids but some of the guys have small kids and it’s just horrific to stay in touch’ (P2).

It can even become a reason for employee turnover:

‘...you might be able to have WhatsApp calls or you might not, or some you can just do nothing for days and there might be a spot where you get Internet and really some vessels I worked on even in the last year where I’ve gone there and they’ve said, oh, can you stay on longer? And I just said no. Or I’ve chosen not to go back to those vessels because of all those things’ (P11)

Food

An unexpected finding was the frequency of references to food and nutrition. Consistent with Mette et al.'s (2018) findings, a healthy diet offshore is essential for good mental health and wellbeing. Poor quality food was a significant factor in making workers feel institutionalised in Parker et al.'s (2018) study of FIFO workers. Good food is something that offshore workers look forward to (P8) in an otherwise mundane working day (Saxinger, 2021). P24, a cook, often complained about the standard of food coming on board, which was a constant source of frustration for those they prepared and provided food for. It was P24's personal policy that if workers were provided with good food, good conversation would follow, and this would lead to a bonding experience for the hour they eat their meals together. If the food was bad, the conversation would revolve around how bad the food was, which is a source of frustration for both the cook and the other offshore workers, particularly when there is little variety (Landon et al., 2019):

'It does happen on certain boats where you're talking to somebody and they'll walk in and they'll say oh not this again, this is shit' and they'll just scrape it in the bin and walk out. And it becomes frustrating for them people because they're living off toast and stuff' (P24)

Food and mealtime environment may even encourage interpersonal communication and provide an opportunity for the development of social support (Stuster, 2016). Food has a significant impact on the morale of offshore employees (P11, P24, P28), particularly when normal routes of fulfillment such as family, friends and entertainment are absent and can help individuals in isolated environments adjust to their surroundings (Stuster, 2016). Good food is important to offshore workers (P8), a dwelling point for some (Sampson & Ellis, 2021), and a disappointment to others:

'Yeah, the food and that kind of stuff and there's been like minor things, I mean it sounds stupid to people ashore, but they stopped getting Magnums and then went to cheaper Bulla chocolate coated ice cream and, it seems like we're spoiled brats, but you think, you can't have a beer out there. You can't go anywhere and you just think, oh, is that what the company thinks of us? Like they're making millions a day, but in a cost cutting exercise, they decided to cheapen the ice blocks down to the most budget ice cream you could get. So definitely food is a big thing, and quality' (P6).

As noted by P6, the quality of food is subject to budget cuts (Saxinger, 2021), an issue which has affected many of the participants across different companies. P8 explained that a cut in budget had resulted in servings of sausages and mashed potatoes, which had negatively affected crew morale:

'It's huge, but for whatever reason, companies, you know, we had a KPI. They audit every cent that's spent and you're only allowed a certain amount per head. In the overall context of their budget, it's like a hair off my head. You know, the food budget is so small, but they still try and smash that down. But it's one of those things that can really keep the place alive'.

Likewise, P28 emphasised the importance of food on the morale of personnel offshore:

'What you have to understand about food, it doesn't matter whether it's offshore or onshore in a fly-in, fly-out situation, is that food is a real morale booster. If the food is not good, generally, morale is not good either'.

The significance of food on team morale is emphasised by its importance across contexts. Food is established as among the most important factors contributing to morale (Douglas et al., 2016) across a variety of work environments including Antarctic expeditions (Hunter et al., 2003) and during space missions (Douglas et al., 2016; Stuster, 2016). P29 identified bad food as being a mental health hazard and also explained the impact of poor food on team morale:

'Poor food can also have a big impact on crew morale, when I worked in Myanmar it was near impossible to get veggies and decent meat and they never put out desserts for night crew. Being stuck there for 9 weeks offshore with the same terrible food each day was pretty awful'.

For one participant, however, food and accommodation were not an issue. While this is promising, this is restricted to one particular vessel:

'Yeah, accommodation and the food, the food is probably the best I've ever had so far. It's even better than probably the Hyatt' (P28)

Helicopter travel

It has long been established that travel by helicopter carries a higher risk than other modes of transport and is a significant stressor for those who commute to work in this way (Bjerkan, 2010; Chen et al., 2009; Sutherland & Cooper, 1991, 1996). Travel by helicopter is noisy (P19. P28) and there is an anxiety before traveling to work (P3) and increased stress associated with the 'constant use of more hazardous ways of transport, like helicopters' (P19). During helicopter training and induction, workers are constantly reminded of the dangers:

'And when you go to all the trainings and inductions, they constantly remind you that it can end with a crash. And I think when people constantly tell you about that, then it takes the toll' (P19).

'You're wearing your, you know, your survival kit as well in case the chopper goes down in the ocean' (P28)

P18 had a more philosophical view of travel by helicopter:

'Yeah, well you get used to that you know. You shouldn't joke about these things but on the way out there, you're not worried about the helicopter flight you know, it's on the way home when you're coming home on leave. A lot of the time when you're going to work you think I don't give a stuff if it falls out of the sky. I think that's an element of it too actually when you talk about [...inaudible...] protective of our leave conditions'.

Work demands factors

The demands of work includes all factors which place strain on an employee, either physically or mentally. Physical demands include length of shifts, insufficient breaks, work overload and environmental stressors (noise, heat and vibration), whereas psychological demands include lack of support, exposure to bullying or violence and lack of job clarity (Safe Work Australia, 2022). Both physical and psychological demands are shown in Table 5.9.

Table 5.9

Work demands factors as perceived mental health hazards for offshore oil and gas workers

Hazard	Causes/examples
Physical demands	
Length of swing	Too long for those with families (P7) Fatigue (P20)
Long hours	Not uncommon to work over 12 hours (P1, P15)
No time to self	Hard to find solitude (P4, P6, P18)
Mental/psychological demands	
Cognitive demands	Being 'present' all the time (P19)
Stress and burnout	Mental fatigue (P26, P27)

Length of swing

The majority of participants were happy with their swing. However, some employees were averse to certain types of roster, particularly when time on and offshore is not at least equal. Other rosters were deemed to be too lengthy, such as P11's five- or six-week roster, which resulted in increased irritability. A four-week roster would be more ideal, *'just perfect'* stated P12. Further to reducing protracted onshore time, where overspending often occurs (P12), particularly during the pandemic (P29), it may also be less damaging for relationships. Going

away for long periods decreases the frequency of presence at home, breaking the continuity with family (P8). P12 had seen a lot of people struggle with their time away, especially those with children and families.

Long work hours

Long shifts, which typically last a minimum of 12 hours in the offshore oil and gas industry (Sneddon et al., 2013), could impede sleep opportunities and therefore result in a reduction in performance at work (Geiger-Brown et al., 2012). After three successive 12 hour shifts, Thompson (2019) found a significant decrease in the vigilance-based reaction times of nurses. Further findings indicated lapses in attention as the number of shifts increase, suggesting that fatigue accumulates with consecutive long shifts (Geiger-Brown et al., 2012; Thompson, 2019). Offshore employees work consistently for weeks on end (the longest in this sample being P11 at 5-6 weeks offshore) without days off (Sneddon et al., 2013). Fatigue levels after shifts had ended increased with each shift worked for the participants in Riethmeister et al.'s (2019) study, resulting in chronic loss of sleep. Working overtime adds a further stressor to offshore work, where long hours, changes in shifts (Sneddon et al., 2013), environmental pressures and limited downtime are already present (Parkes, 2015). Considerably more stressful is when managers take note of minor lateness when employees are otherwise willingly working overtime:

'Now and then you get an OIM who's a clock watcher and I have had actually had a bit of an anxiety attack at one of the morning meetings because an OIM insisted that I sort of rebuke my guys about their time keeping. But he sort of wants it all one way. We were doing all sorts of time out of hours, main engine had tripped, we'd had a few issues and the guys, I never sort of have to ask them to turn to after hours, they're always there. It's more my priority is getting some off to bed so that they're fresh, for when the next disaster hits. So if I got an OIM out there that's a clock watcher and saying, oh, you know, these guys were in 5 minutes early for lunch or five minutes past smoko or whatever, that's pretty frustrating when the guys are putting in outside hours as it is, you know. So yeah, that actually, I did have a bit of an anxiety attack at one of the morning meetings over that' (P22)

Unsatisfactory accommodation also undermines sleep quality and duration, leaving workers at risk of fatigue (COSHH, 2019). Furthermore, there are often changes in shifts which coincide with cabin changes, as revealed by P2:

'And people will be changing cabins mid-swing and that type of thing. And you've got the shift workers on sharing cabins and they'll change shifts and have to... you know, one guy'll be changing shift and the other guy won't be so they just don't manage it

properly and it comes down to the fact that they didn't want to put the right amount of accommodation on there'.

Changing shift in this way disrupts sleep (Gibbs et al., 2005, cited in Sneddon et al., 2013) and results in a shorter duration of sleep for both day shifts and night shifts (Parkes, 2015). Changes in circadian cycles can be numerous, for example, a two-week roster consisting of 7 nights and 7 days will result in 2 circadian changes of 12 hours. While the consequences of the initial change to nights during the first week settles within 5-6 days, the readaptation to shift change in the second week is more difficult and is seldom accomplished in the following week (Parkes, 2015). Shift patterns that remain stable over each offshore cycle, for example fixed days or nights for the entire duration of the swing, will facilitate undisturbed sleep (Sneddon et al., 2013).

No time to self

It is hard to carve out time alone on an offshore facility (P4). As employees spend all their working and non-working time offshore together, this is an important avenue to explore, since having access to facilities that provide sensory privacy and relief from noise and the presence of others can help reduce levels of conflict between co-workers, thereby facilitating the promotion of team functioning and wellbeing (Landon et al., 2019). The social and spatial density in the offshore environment can feel even more intense when there are added stressors in the environment and spending time alone is just as important as socialisation and congregating as a group. It does not imply loneliness (Saxinger, 2021). Solitude is distinguishable from loneliness by its positive and beneficial aspects (Long & Averill, 2003). While unwanted solitude has associations with poor mental health, particularly loneliness (Long & Averill, 2003) and depression (Williams & Nida, 2011), an unmet desire for solitude compels individuals to continue to merge their experiences with those of others, ultimately preventing a state of disengagement from the psychosocial demands of human interaction (Long & Averill, 2003).

Home life factors

Table 5.10 shows the main problems that participants identified related to home life factors.

Table 5.10*Home life factors as perceived mental health hazards for offshore oil and gas workers*

Hazard	Causes/examples
Away from home	
Away from family and friends	High rates of divorce (P8)
Hard on relationships	Unresolved arguments (P8)
Family-work interference	Family issues worsened by isolation, particularly with children (P15)
Missing events at home	Hard to transition back into home life (P8)
Poor work-life balance	Missing special events hardest (P12, P25)
	No entertainment or social events after work (P11)
	Living 'two lives' (P28)

Away from family and friends

Working away for long periods caused P12 to change drastically over the years spent offshore. Fitting back into society became difficult, trips to everyday places such as the supermarket became increasingly uncomfortable, and relationships broke down. During COVID, quarantine measures and border closures meant that some offshore workers were away from their families for very long periods:

'I spent pretty well eight months last year away from the family. That was a huge thing, and you could probably do a whole separate study on how that affected us all. It's definitely changed the way I look at it, like I've really lost interest in being there. Not from the job wise, but every time I fly into WA now, it's almost this sort of trepidation, you know, am I gonna get stuck over here again? And yeah, I'm pretty worn out, you know. It's not that I don't like WA, so don't take that that way. It's just that I ended up getting on a plane one day and didn't see my family for eight months' (P6)

Working offshore is undoubtedly difficult for relationships. P12 had suffered the break-up of relationship, which led to depression and drinking. Relationships were particularly hard when the COVID-19 pandemic was rife (P5). Trust is an important factor, and a lack of trust can affect wellbeing while offshore. Regular contact appears to mitigate concerns about partners back home and increases feelings of trust (Carter, 2008).

'Working away from your family, that plays on your mind as well. And I think it's important that, depending on your circumstances, if your spouse, your girlfriend or whatever, they need to be an independent person as well' (P29)

P17 felt a lot of anxiety about being able to communicate with their 9-year-old son. Missing childhood events and doubts about impacts of lengthy absences on partners and children was a concern for participants in Gardner et al.'s (2018) study of onshore FIFO workers.

Family-work interference

Family-work interference results in a negative impact on safety in the workplace and is linked to workplace cognitive failure, which in itself is negatively linked to compliance with safety guidelines and participation in safety processes, as well as acting as a mediator between family-work interference and both safety participation and compliance. Committing to safety practices moderates the route between cognitive failure in the workplace and both participation in and compliance with safety procedures. In other words, a strong commitment to safety reduces the negative association between cognitive errors at work and safety objective behaviours (Johnson et al., 2019).

'If you've had any arguments or anything like that in those last couple of days before you go offshore and you're not talking and there's been an issue and you haven't put it to bed and then you go offshore... I think there's a... the biggest thing is from what's happening on the home front that you're taking offshore, are you having issues with your kids? Are you having a marriage breakdown? Like, those things can really, really mess you up and you know, I made a point somewhere or other, at least half of the guys that I work with in in my department have had a divorce' (P8)

There is often a feeling of living two different lives for offshore workers:

'You got two lives, basically. You got your life at home and then you got your life working away. And you really have to, it's a bit of a mindset too, you really need to switch your brain onto like, OK alright, so I'm going off to work. OK, so now to put my work brain into practice. And just on that... it's basically, it doesn't matter how long you've done this work for, we tend to go through the same cycles, like I can tell you now, like maybe two or three days out before I'm due to leave I'll start to feel a bit off. You just do. It's just a feeling that comes sort of like over you, it's because you're probably thinking, well, have I done what I need to do while I'm home? Gee, I like being home. But I have to go to work. And you see that in almost everybody that does this type of work. I mean, they'll tell you, you know, two to three days out you start feeling like crap to be honest' (P28).

This reflects the findings in Parkes et al.'s (2005) study, where partners felt that there was a rise in levels of tension the few days before the return offshore. FIFO partners in Gardner et al.'s (2018) study reported 'two worlds' (p. 3), where increased self-reliance and independence were required when workers returned away. Even so, this can cause issues in relationships:

'Just partners being very self-reliant causes breakdown in relationships. Can be a burden on the wife more than him. The discipline of children, you can't, you know come in and be throwing your weight around when it comes to that' (P8)

Considering that levels of stress rise in the days following the return home and then again in the few days prior to leaving, results suggest that both parties may find the transition challenging (Parkes et al., 2005).

Missing events at home

Working offshore and being away for long periods of time, it is inevitable that workers will miss some events. Five participants (P5 P15 P13 P12 and P21) identified the inability to be present for important events with family and friends onshore as one of the main mental health hazards. For participants in Gardner et al.'s (2018) study, not being able to respond to family emergencies due to the inability to access flights, caused employees stress (see also Colquhoun et al., 2016). However, P21 revealed that it was relatively straightforward to fly an employee home in an emergency and expressed frustration at not being flown home when a family member was in an accident:

'Worst times are birthdays, Christmas, if someone is in an accident, my son was in an accident and they wouldn't fly me off, but I used to do that, so I know how easy it is to fly people off' (P21).

It is difficult for offshore workers to fit back into home routines (Parker et al., 2018), particularly when FIFO rosters have been a fixture in family life for a long time. Those at home become hardened to not having their partners in the household and begin to fill the role of 'leader':

'So the wife or partner or whatever can become quite tough and very regimented in the way that she does it, because that's the only person leading the house. And that can go right down into discipline for children, stuff like that. When you walk back into that environment, there's a transition phase there. You can't come into that environment thinking that your sex life is gonna be wonderful because you've been away for three weeks. You know, your wife's gonna greet you at the door, loving you, that your kids are going to be like listening to you, that you can come in and be telling them what to do or telling your wife what to do. It's a really big transition stage coming back in' (P8).

In Parkes et al.'s (2005) study interviewing the partners of offshore workers, the reunion period when returning home was found to be an interval of happiness. However, a stage of 'annoyance' (p. 419) followed, with a transition into a more settled period of adjustment, returning to the family home when things have continued as normal at home over the weeks away (Parker et al., 2018). P8 went on to explain that the relationship with their partner was a healthy one, but that going back to work presents problems if disagreements have occurred and they have not been resolved before going offshore. This is likely to affect mental health while offshore in a significant way, especially if there are issues with children or marriages are breaking down. Ensuring that integrating back into home and family life is a success is

facilitated by communication (Parker et al., 2018), however some workers felt like a stranger when they returned home, resulting in a feeling of detachment from their home life. Sibbel's (2010) findings were similar, with FIFO mineworkers feeling like a stranger in their own home when returning from time away. Further findings indicated that families with children found the increase in challenging behaviour when partners were away.

Similarly, P8 described what they thought might be helpful in preparing couples and families for the realities of a partner working offshore:

'So as a husband coming home, you can feel like you're coming back into your home, but you don't feel a part of it. And it can be very different. So it's just one, that's one of these areas that isn't really covered by the mental health. I really think that companies, if they're really interested in mental health of their workers at work, they really should be looking at having their mental health at home very good and like, as in marriage counselling and specifically not just a general counsellor, but somebody that is trained on sitting two of these people down and that the work in the FIFO industry and saying, look, this is what happens to everyone.'

Travel between work and home means that several days can be lost either side of an offshore swing. In some organisations, travel is taken in own time (P15), so can significantly infringe upon an employee's time off, particularly for those who travel interstate (Education and Health Standing Committee, 2014). Organisations were urged to incorporate travel time into rosters by Unions WA.

Early flights back onto the work rotation mean that employees need to wake up between 2am and 3am. If workers are on the afternoon helicopter flight, arrival on the facility may not be until 2pm or 3pm the following afternoon. This is problematic for those going straight into night shift and there may be an extremely long wake time for these individuals. This makes it more difficult to remain alert in the first week. Likewise, returning home from night shift and arriving home at 9pm causes further fatigue (P29). While there is at least one day full travel for P15, others have travel time factored into their roster:

'So every day worked, you get a day and a half off, so that allows for travel time and/or if you have to do overtime over cycle you might come in and do an extra week somewhere in your four weeks off. But you're still getting enough time at home to catch your breath' (P8)

P19 did not think that there was a problem with workload and fatigue:

'I think the company tries to allow sufficient time to rest for people, so I don't see people being overworked, the general work time, off time, like work-life balance for offshore in place from my perspective, it's very generous'.

Poor work-life balance

Balancing the demands of work together with home life is difficult even for onshore FIFO workers (Gardner et al., 2018). For offshore workers, solutions such as utilising town site facilities (Sibbel, 2010) and mine site visits or family days (Gardner et al., 2018) would be unfeasible. Rather, the periods of boredom after high levels of work activity (Parkes, 1998) should be addressed:

'And then I find a lot of the time, there's nothing to do outside of work. You don't have any, like, you're not gonna have a complete balance when you're at work. But if you're just working and eating and going to sleep...' (P11)

Healthy organisational culture recognises that it is unreasonable to expect employees to function at maximum capacity for the whole working day. They need regular breaks, healthy food choices, physical exercise, adequate rest and healthy social interaction. There should also be a balance between work demands and family responsibilities, where the needs of both organisations and individuals are considered (Quinn et al., 2012). In the absence of family while offshore, workers should have access to decent communication facilities and recreational pursuits during downtime. Some organisations are making efforts to promote work-life balance, at least in the messages they impart to their employees:

'They sort of reinforce the work-life balance, they reinforce the importance of maintaining a healthy work-life balance and I think that's quite important and quite strong as far as the messages that all employees including myself are provided' (P17)

'Then if you have family issues like being isolated, especially if you've got young kids, talking on the phone, it's not the same as being there and helping. So that can play largely on your mind when you're away' (P15)

High stress facility

Offshore platforms and vessels are undoubtedly taxing and high-pressured. There is an overarching '*stress associated with work with a major hazard facility*' (P19). The general atmosphere is one of anxiety, where production-driven demands are always present (P26). Other stressors mentioned include changes to routine (P3), getting used to the environment (P3), anxiety before travel (P3), noise, heat and isolation (P4), lack of personal space (P4) and long working hours (P15).

5.3.7 Have you experienced any psychosocial stressors?

Psychosocial factors include poor interpersonal relationships, stress, fatigue, bullying, violence, aggression, harassment, and burnout. While the offshore oil and gas workforce is generally a tight-knit community of workers, there were several participants who identified psychosocial stressors, which were generally bullying and aggression. Bullying occurred in both direct and indirect forms.

Bullying and aggression

P28 had experienced poor interpersonal relationships and had been involved in verbal exchanges. P21 identified that they had experienced ‘*all of the above*’ when psychosocial stressors were listed:

I’ve seen violence in the workplace, I’ve seen aggression in the workplace. You know, I’ve had to fly helicopters out to platforms and FPSOs to get guys off because they just pretty much twist off. And it’s this stress of being away from the family’ (P21)

As stigma emerged to be a significantly generational attitude throughout the interviews, as shown in responses to question 12, bullying and aggression came mostly from older workers:

‘Yeah. It’s definitely becoming old school and the people that I have witnessed do it are old school people as these days everyone’s aware’ (P8)

One participant (P10), who was of a younger age than most of their co-workers, felt like they did not fit in due to the age gap. When they first started working offshore, they were unsure as to whether they could fulfill their duties due to their age and inexperience to such an extent that they experienced Imposter Syndrome, asking themselves whether they fit in and if they should be there. Furthermore, occurrences such as name calling, attempts at provoking and putting themselves above the employee were forms of workplace bullying, until co-workers raised the issue with the perpetrators and stated that it was unacceptable behaviour. Psychological isolation increases poor mental health in workers (Parker et al., 2018) and has been linked to loneliness, anxiety, and depression in FIFO workers (Gardner et al., 2018). A distinctly different concept to solitude and being alone, psychological isolation in the sense of ostracism from social connections is a risk to the fundamental human need for belonging (Williams & Nida, 2011).

Working in close proximity with others, P14 explained that there is constant stress due to interpersonal conflict and felt that the best way to deal with it was to remain calm. Differences of opinion can be a challenge (Henry et al., 2013) and more serious disputes have the potential to affect safety unfavourably (Landon et al., 2019), as well as alertness and the ability to carry out tasks effectively (Nielsen et al., 2013a). The importance of creating harmonious relationships with colleagues to maintain mental wellbeing is highlighted by P10, who felt that spending weeks with the same people doing the same activities could easily result in feelings of being overworked and overloaded (P10). It is interesting to note that it was not particularly common to find bullying among colleagues, but that it was more something which came from management:

‘As for bullying, I’ve witnessed that. Definitely. But it’s always come from management-level down. It generally hasn’t been bullying between us peers. If you get a supervisor that doesn’t like someone underneath them and they can make their life hell, hold them back from promotion, or they just play games, it’s not good’ (P8)

This is consistent with Parker et al.’s (2018) findings, where a large amount of bullying for FIFO workers came from supervisors (40.54%). P20 had witnessed aggression in the workplace and had been spoken to aggressively, although added that it had not been taken personally because the other person *‘had something else going on’*. The participant also noted that other people were the main work-related mental health hazards offshore, which is discussed under question 6. It is difficult for employees when bullying comes from higher up:

‘The only thing that you can do, and, you know, people do do this, they would just start taking notes and with bullies all you have to do is confront them, and you know when you get some evidence behind you and then one day, just confront them and just say this is the last time, like no more because it’s always a strong, big strong Alpha male picking on the weakest one in the group’ (P8)

Confronting a person who displayed bullying behaviour was also practised by P24 and a recommendation of several senior-level workers such as supervisors, directors, and executives in Hampton et al.’s (2019) study of nursing leaders. Another form of bullying by management has been witnessed in response to employees speaking out on work-related matters. Raising a concern regarding safety, particularly where the concern is not shared by management, can increase stress levels and result in bullying and intimidation (Henry et al., 2013). Victimization after raising concerns about safety is not uncommon (Henry et al., 2013). P21 explained that

they had a straightforward personality, and would sometimes speak up, particularly when the issue involved a risk to safety:

'There was a time when we were about to start up platform. He was downstream. He's working on the gas plan. He told us that something was ready. And he kept saying that we were critical path. I was managing the platform and I'm like, no, we're not critical path. How can we be critical path? We're a much smaller asset to build, like OK we're offshore, you're onshore. That he was messaging to those above that the platform is critical path so I found a way to actually, you know, we set up our work processes and we made sure we weren't critical path because we didn't think we were and we got to a point where I was ready to send him gas. So I rang him up and asked him can you ensure that the beach valve's closed and he went silent. Oh what do you mean? And I'm like, well, I'm going to give you gas. You told me that you had done this job. You told me that we were critical path. We are ready to send you gas and I think because, not knowingly, that we, you know, we put him under pressure to actually now be accountable for what he said he was gonna do. I think at that point, our relationship changed. And it wasn't intentional'.

The incident began a period of bullying for the employee, where they were discredited by their manager, demoted and excluded from meetings and trips. The manager would also talk over them when they spoke. This led to doubt over role stability during workforce transformation and redundancies. Just as in Milliken et al.'s (2003) study, speaking up resulted in this participant being unable to communicate and collaborate effectively to the requirements of the job role. If employees feel like they are unable to speak up, particularly regarding safety concerns, due to the culture on the facility, this can have a major effect on mental health (P29). P22 was of the opinion that the bullying came from management level:

'It's generally from higher up because there's always a little bit of banter amongst the team, but generally speaking, I've always found that to be restrained and healthy, you know'.

After being subcontracted to a company where they felt that one of the Offshore Installation Managers from a larger company was victimising contracted personnel, speaking up at a feedback meeting was informative and brought clarification for the participant.

When employees who speak up are dismissed by their company, not only do the organisation further increase any existing lack of trust in the organisation or its management, but they may also risk losing a valuable employee (Sampson et al., 2019). Organisations have a legal obligation to provide safe systems of work that follow specific procedures that result in the safest possible working environment for employees, even if a small amount of risk may still be present. These work systems include managing unfavourable workplace behaviours. When

employees exposed to psychosocial hazards such as harassment and bullying but are unable to refuse to work with colleagues demonstrating unreasonable or inappropriate behaviour, as in P11's case, employees are at risk of being exposed to psychosocial hazards due to low levels of control (DMIRS, 2022):

'I've definitely worked with some difficult people. There was a time that, like I was on one job for, it was about six or seven weeks, and we took a vessel from Darwin to Christmas Island and back. And the other guys on the boat, they sort of thought we were taking their jobs and it would become very hostile. And by the time we got to Christmas Island, it was halfway, I was like a nervous wreck, you know? It was that bad. I just wanted to get off and quit. But you couldn't go anywhere over there cause it's just a remote island. So we had to come all the way back with these people. You know one guy that I really didn't get along with, he was like picking on me quite a lot. He would like, yell at me and stuff. I had to live in the same room as him there's just nothing you can do, nowhere you can go. And I ended up seeing a psych about that a few times because it was, it was pretty stressful. There's not much you can really do when you're in in those situations. No you can't really, not when you're in the middle of the ocean, there's not that much that can be done. You know, I could go and report it later on and they could have a meeting or whatever. But you know at the time we're in the middle of the sea, so we just had to wait till we get back. And then I just left. I just chose not to work there anymore' (P11).

Job resources such as role autonomy and job control have significant associations with positive outcomes for mental health, including increased engagement (Albrecht & Anglim, 2018) and lower levels of psychological distress (Berthelsen et al., 2015). Job autonomy gives employees a sense of authority over job-related factors as well as conveying the sense of being trusted (Yunus & Mostafa, 2022), a point also made by P27:

'I think that one plays a big part in affecting mental health. When you go into a job and you know that you've got that autonomy and you've got the trust of your managers and supervisors. It does incentivise you to do better and achieve'.

Allowing employees a significant degree of autonomy and freedom over aspects of their work on a daily basis is likely to result in higher levels of enthusiasm and motivation to perform well for the organisation (Albrecht & Anglim, 2018). Achieving work goals is also a job resource to draw on to counteract job demands (Bakker & Demerouti, 2006). Working patterns that are flexible are linked to higher levels of trust in management, which consequently reduces work-related anxiety (Yunus & Mostafa, 2022).

P29 felt there was little support or guidance from managers when first working offshore. Poor interpersonal relationships and remarks made by others have caused emotional distress for P29. This, it was felt, was due to the culture on the facility:

‘There is a general culture of saying it like it is, being blunt and often not really caring about other people’s feelings when saying things. The more you work offshore, the more you become used to it I suppose but when first starting offshore it can be quite a shock and affect mental health quite a lot’.

P29 also revealed that there was personal harassment from another employee on the facility. It was not known whether this was a co-worker or manager:

‘I experienced a bit of harassment from one guy who was interested in me when I made it very clear I wasn’t interested’.

As noted by Champions of Change Coalition (2020), sexual harassment is not solely an individual behaviour, but an intrinsic cultural matter and women are at risk of increased sexual harassment. Remote or isolated work environments, where employees also work long hours and are under high levels of pressure, increase the likelihood and severity of misconduct. Furthermore, male-dominated industries are known to escalate this risk (Champions of Change Coalition, 2020).

5.3.8 If you have experienced returning to work after an illness or injury, how were your mental health needs considered in your return-to-work plan?

For physical injuries, it is usual for the sole focus of return-to-work support to be on recovery from the actual injury itself. P22’s return-to-work plan was solely related to physical rehabilitation and mental health *‘didn’t really come into question to be honest at the time’*. It has usually been *‘fitness for work in a physical state, nothing around mental health, you know at all’* in P13’s experience. As a HSE Coordinator, P1’s organisation *‘mainly targets the physical dynamics of the employee rather than mental capacity for work’*. P1 added that assessment for mental health fitness was minimal:

‘Currently there is limited checks done that relate to the mental health of the employee. However, they do see a doctor during their return-to-work process, so indeed this would be still looked at’.

Likewise, P2 highlighted the lack of emphasis on mental health:

'No. No, it's all about physical health. Whether you can just do the job and get your clearance from a doctor and there's never any considerations to mental or emotional stresses, no'.

There may be no opportunity to rest and recuperate when falling sick while working offshore. Due to factors in the environment and a colleague being sick, P16 became sick, but had to continue working:

'I got flu. I think I got sick because the Air Con was really cold inside. But then you have to be inside and outside during the whole day, so I think that's what made me sick last. Plus I think someone was sick as well. So they get sick, but they have to continue working. So like, if you're working and someone is coughing or sneezing, you still need to be there. I think that's why I got sick. But that's the only time and I didn't have even time like to rest or anything. It was just like take pills, continue working, and yeah, hopefully you'll be better next day'.

A few participants did commend their company's consideration for mental health during employees returning to work:

'Ohh, I take my hat off to them in that regard. In the way that they deal with people's circumstances, being compassionate or illness and returning to work, they're very... there's a lot of... obviously with the doctor, very, very good support system. very, very good in regards to mental health and returning to work and assisting you to do that' (P6)

P17's mental health needs were considered quite highly. There was a period quite some time ago where they had needed time off due to stress and anxiety. They explained how they felt returning to work:

'I made it very clear that, you know, I wasn't 100%, and I think my physical and mental health was considered carefully. However, you know, employers at the end of the day expect you to be present for 40 hours a week and produce 40 hours a week worth of work, which is completely understandable you know, that is what they're paying for and that is what they expect, so even though there is empathy in individual circumstances, companies do expect you to perform your job, so it's a balancing act you know. I think governing all of it is your ability to produce sufficient work within the time that you are being compensated for if that makes sense'

It may be that mental health conditions are perceived as something less genuine than physical ailments and disorders. Comments such as *'It's not like a wound which heals and is sewed up and healed'* (P24) are common. Mental health literacy may be a vital tool with which to place emotional wellbeing on a par with physical health. Increasing mental health literacy, which is the having the knowledge to recognise, manage or prevent mental health issues (Jorm, 2000), can be achieved through Mental Health 1st Aid, helping individuals to recognise mental health problems, and act accordingly in a crisis situation (Rodgers et al., 2021).

Mental health is a definite consideration in P5's workplace when returning to work. The use of the company's EAP is further promoted during the return-to-work process. Additional assistance can be found through the medics or line supervisor and there is no pressure to be out in the field if they are not fit for work. Ensuring that there is support in practical form, such as access to health services and return-to-work facilities, can provide a protective solution against the negative impacts of exposure to psychosocial hazard in the workplace (DMIRS, 2022).

5.3.9 How does the workplace culture affect whether someone will seek help for stress or poor mental health?

Workplace culture is a factor that has the potential to significantly affect workers, and the protracted time spent offshore can be challenging in an unfavourable environment (P16). Along with stigma, the culture of a workplace influences disclosure and reporting. Often, the male-dominated nature of offshore work means that mental health conditions were generally not disclosed due to perceived stigma and the potential compromise of long-term career outcomes (Matthews et al., 2021). Embarrassment in seeking help and experiencing a negative reaction from professional sources were reported in Barney et al.'s (2006) study, particularly from males, who were less inclined than females to seek help. A similar pattern was reported by Henry et al. (2013), where FIFO workers stated that their reluctance to seek help was due in part to the fear of showing weakness. Showing evidence of poor mental health to male colleagues could possibly determine them as weak (Seaton et al., 2019). This is driven by an underlying stigma in the work place and a fear of threat to work (Henry et al., 2013), particularly for casual workers:

'And they're losing their jobs so they don't report so much because I don't think they'd report psychological, you know, depression, because they just wouldn't pick them up the next swing' (P24)

There is an 'I'll be OK attitude' (P24), particularly with casual workers, who are frightened about losing their jobs (P24). Personal problems are dealt with privately, consistent with the characteristics of the emotionally hard male-dominated culture (P4, P5, P6, P8, P13) that acts as a substantial barrier to help-seeking and accessing support, which contrasts with male virtues such as self-restraint and stoicism (Matthews et al., 2021). Indeed, men's mental wellbeing is more likely to be affected by social environment than by the fact that they are male (McKenzie et al., 2018):

'I think oil and gas, especially diving, attracts a mindset which is, well diving's the last Bastion of the of the Alpha male, where you know women aren't welcome. It's a strange,

strange space to work and that's not everybody, but it's very much a testosterone male-dominated thing, but because they put all the rules in place then it becomes a bit of a... and they made that like how good you are as is how good you know the rules so I've become then like er... oh yeah I know the rules mate I'm not going to do that, whereas in normal oil and gas, or even mining, or whatever that attracts that type of guy that like I'm a Decision Maker, I'm a whatever... but they're also a risk-taker you know, and that has to be mitigated and you see it all the time, like guys butt heads because they do feel it's a big status thing, yeah which is interesting you know, rather than just a glorified labourer which is just what we are' (P4)

This echoes previous findings that women were discriminated against and harassed and were unwelcome offshore. Austin (2006) found that disapproval of women working offshore in the 1970s was such that harassment and mistreatment was widespread and institutionalised. According to P4, diving in the offshore oil and gas environment has a more pronounced emphasis on mental strength and seeking help would be seen as a weakness:

'So nobody would ever in the diving culture seek that and not make that aware because diving's... number one, you don't want to be mentally weak at all, like you would never show weakness in diving, ever. And that extends to even in this role that I'm doing now'... 'There are some people who are very brave who've said stuff and it's more open but it seems to be more about you're allowed to admit a perceived weakness'.

Asked whether it was acceptable to speak up in relation to a work stressor, P4 continued:

'I'm pretty good with that, like I've already shared that with the job that I'm doing now, I've said that the workload that we've got is too much, but my opposite's is like 'no no, it's fine', and actually what he's doing is, he's not doing all of the job but he's telling them that he is doing the job. Unfortunately, last swing that came out so that's hard to battle against when you've got somebody whose workload is so much that he's only doing the bits that he thinks people will notice and then closing it all up. and that's in no way blame either. That's him coping with too much workload but he refuses to say that there's too much workload and it's not able to be done. Instead it's like 'yeah, I can totally do it and I can do it in record time. Oh look it's done', you know? That's a symptom of that and that shows that he feels that he can't do that, whereas I'm like... yeah, nobody wants to be that person that says there's too much'.

Reducing workload pressures would be helped by increasing the number of employees (Brooks & Greenberg, 2022). COSH (2022) advise that organisations check that employees are coping with workloads, however employees are reluctant to admit they cannot cope with excessive workload:

'I have left a job because I found it too stressful to maintain a high productivity level. Felt better leaving on a high then getting to a point where I failed and was unwilling to show managers I was stressed' (P3)

Offshore workers are unable to access conventional frameworks of support such as family and friends and together with geographical and social isolation as well as loneliness, job demands offshore clearly outweigh job resources such as positive adjustment (Vojnovic et al., 2014). In terms of job demands and resources, Dollard et al.'s (2009) Australian Workplace Barometer Report (AWBR) found that harassment and bullying were associated with high work demands and low work resources. Other research also supports this association (Österman & Boström, 2022). It is this unyielding culture where male virtues such as stoicism and indifference are the norm that has resulted in the bullying and harassment of employees by management:

'Like a bloke I know he had time off because his daughter died and he was bullied and harassed by one of the HR managers to get back to work and you know his daughter died of SIDS... I think by and large, yeah, that they there's a push to try and push people so they quit' (P13)

Another devastating outcome that could have been avoided was mentioned by two of the interviewees. A worker with a mental health disorder who had been forthright about how he was feeling about going back to work offshore was coerced by management to remain on the facility:

'There was another guy, he had some mental health things going on. He went to work on a ship and when he got home he stabbed another person. They died. Yeah. So, like he immediately had some mental health things going on, but he was pushed and then he had to get off the ship. And then when he got home, he killed his housemate' ... 'So if we take prescription medications, we have to report them to the master, the captain. And so he's done that a few times and he sort of felt that he'd been victimised about declaring his personal medication, and then they put him on a vessel where he had some negative interactions with another master before, but they sort of softened it over and he'd asked the HR crewing person and said, look, I don't wanna go there, I don't wanna go there and they got pushed and four days into a 10-day short swing and he had to go home and he snapped. And then, yeah, not long after that, he killed his housemate' (P13)

Even when co-workers had urged the company to remove the person from the facility when they could see that they were suffering from extremely poor mental health, the company insisted that they stay:

'And he was taking pills and everything, and the boys noticed that he wasn't right. And they phoned the office at the time, and they said you need to get him off, you need to get him off. He's not right. And they said no, no, he said he's OK. So yeah, he's staying. And this guy stayed, went through work and he wasn't right at work, when he got off work, he went home and killed his flat mate' (P24)

Being afraid to speak up on issues appeared to be pervasive throughout the analysis of interview data and was a theme which emerged in examining the culture offshore. This not only related

to stigma and ‘appropriate’ male characteristics such as strength, resilience and emotional detachment, but to work status. Although the industry is male dominated, there is a slow change occurring (P13). A tight-knit community, P5’s workplace relies on the closeness of personal relationships to ensure the psychological health of their team:

‘The HSRs are always reaching out and I think a lot of all the core crew people they get a sense of where people are at mentally, like after working with them for a while you can pick up on little cues or things that might not be right, so you can touch base with them’.

Communication regarding safety concerns is vital to maintain a safe working environment, particularly in high-risk industries such as offshore oil and gas. Speaking up about safety issues, or safety voice (Mathiesen et al., 2022), should be bi-directional, where concerns are communicated both upwards and downwards as this can decrease the risk of accidents. Unfortunately, speaking up depletes both time and energy and has numerous negative impacts on employees. As high job demands predict low levels of safety voice, it is plausible to surmise that speaking up would occur more frequently if the working environment was perceived as supportive. Furthermore, greater job control and reduced job demands would increase safety voice behaviour (Mathiesen et al., 2022). On construction or intervention vessels, the culture is more open and people are a lot more comfortable in raising concerns or talking about mental health. P27 explained that the culture is often different according to facility:

‘I don't think the same can be said about drilling rigs or offshore drilling units, where it's still very much a macho culture and it's about getting the job done. So I think there's a very big difference. It's a lot more comfortable on a construction vessel as opposed to a drilling rig’ ... ‘It is very production driven. That's why the industry has things like the oil rig doesn't wait for anyone. Things like that where because you're project-driven, so the rig is usually your critical path where everything is where the rig is driving the schedule. It's driving the cost that's driving the completion and they want to get stuff done as quickly as, safely and as environmentally aware as possible with minimal impact. Right. And I find that there is quite a competitive culture as well, where one rig has done it in this amount of time or the previous offshore installation manager's done it in this time we need to beat him. Everyone's trying to outcompete everyone and do better. It comes from a good place of healthy competition. But sometimes it can get blown out of proportion where people are starting to focus on the wrong things’

The culture of drilling rigs is identified as being different to other facilities, where the focus is on production, and has been described as an ‘American culture’, where they ‘*treat the men like garbage and you know the clocks ticking. Get out there and work for the man kind of thing*’ (P6).

P27 remained positive about the nature of their experiences while working on drilling facilities:

'I've had relatively positive experiences on drill rigs, but as soon as you step on, as soon as you start getting to work, yeah, it just feels a bit different with the ships you can kind of sit down and get your thoughts together on the rig. It seems like it's just go, go, go, go.'

Perhaps due to the extended time spent together and the mostly male demographic, competitiveness is likely to develop between offshore workers. Just as P4 pointed out that the establishment of the Alpha male is rife in the diving culture offshore, it may be similar for other sections of an offshore oil and gas organisation. While there are diverse theories explaining the bullying behaviour of leaders, Hampton et al. (2019) believe that social dominance theory may be the most relevant where managerial roles are concerned, which assumes that those inclined towards social dominance perceive their environment in competitive terms.

5.3.10 In what way have you found that the personality of managers affects employee mental health?

According to P29, one of the biggest factors affecting mental health offshore is working under someone that has a difficult personality:

'There was a manager that used to work at our company who has now been let go because of the way he treated people, and everyone that worked with him used to say how much they dreaded going back to work. A previous manager I worked for offshore was extremely demanding and constantly paging me to get updates on what was happening and there was little trust in me, I found this quite mentally taxing and would feel so much more exhausted working under him than his back-to-back.'

Lack of trust and relationships low in trust, particularly when this is bi-directional, are not only ineffective but also undermine available support for employees who work at sea (Sampson et al., 2019). Furthermore, managers can impact the morale on board the facility, which can take focus away from the task and puts workers at a higher risk of accident involvement (P12). Managers who do not listen or have little interest in the opinions or input of employees have a negative impact on the mental health of workers as they feel like they are not being heard. P11 explained that people are happy to work most of the time but that they just want to be listened to and have some input in what they are doing. Work environment should be inclusive and employees should be consulted when decisions are being made which affect their work environment (DMIRS, 2022). When employees have limited influence over their work and are not engaged with making decisions about work that impacts them, it negatively affects morale:

'You can get some vessels with the management, say you have to do this and I don't care about what you think or what your reasons are or you're just told what to do or'

things like that. If it has a bad effect on morale and a lot of the time people don't really care about morale, there's a lot of managers that think, like will they realize that when morale is high, you have better workers as well?'

P11 seemed to think that there was definitely a personality type and that it can be more common in smaller vessels, particularly when workers are from fishing backgrounds and are suddenly placed in managerial positions without appropriate managerial education or skills. On larger vessels and facilities, managers have higher levels of managerial skills and are used to overseeing a much larger number of employees (two or three hundred, compared to three or four people on a smaller vessel). Micromanagers spend an excessive length of time supervising their employees and projects, overseeing every minute detail. They see their subordinates as incapable of handling important tasks. Unfortunately, they also micromanage capable employees along with those who are underperforming (White, Jr., 2010), preventing them from being otherwise engaged in work (Tavanti, 2011):

'Like sometimes the officers upstairs, the chief maid or the captain can be really, like in any job, can be a real micromanager or really, most of the time a good crew all feel like you're all on the same level. You're all in the same boat. Yeah, you work together. But then other times there can be these power trippers and there can be a real us and them thing and there's a lot of history between officers and engineers and deck crew' (P12)

If managers are bullying workers and they do not operate with an open management style and tend to lean towards more of a dictator style of leadership rather than a collaborative style, mental health can be negatively impacted (P22). P21's experience of being bullied by a manager and then being offered a role at a lower grade is *'almost like a demotion when you've been a high performer. So the manager certainly has a massive, massive, massive effect'*.

While several factors are proposed to facilitate bullying in the workplace, certain personality types have been proposed to be linked to perpetrators of bullying, for example, authoritarian and abrasive personalities (Baillien et al., 2009). Personality traits of both managers and employees will affect behaviour and how people interact with each other. In particular, angry leaders are more likely to engage in petty tyranny (Kant et al., 2013):

'Well, we've got managers who are noted for being... just they won't listen to nothing from you. Their idea is they're king and that's it. They tell you what to do. You can't tell them what to do. And if you say I'm not going, they'll say OK, you've got no leave. We'll just stop your wages' (P24)

Employees who are anxious perceive higher levels of petty tyranny and while this could be due to the tendency to perceive situations as threatening, it is more likely that anxious workers display submissiveness and remain quiet or withdraw in the event of bullying from leaders (Kant et al. (2013), especially as they are compelled to work together in confined spaces for long periods (Hershcovis & Barling, 2007):

‘Oh, you do your best, obviously, to get along. But again, it's gonna impact if you're in a small space, crowded in on top of each other. There's not a lot of recreational facilities or anything out there. If people aren't being courteous and respectful, it's gonna impact others, you know, small things can escalate’ (P22)

Often the preferred target of aggressive managers, submissive individuals react anxiously and withdraw, furthering their likelihood of being targets due to lack of consequences for the bully. If there is a possibility that there may be retaliation, the evaluation of potential outcomes of an aggressive action, known as the effect/danger ratio (Bjorkqvist et al., 1994), is perceived to be poor and so may discourage a manager from aggressive conduct. Consequently, an employee high in trait anger is more likely to divert unwanted aggression from supervisors (Kant et al., 2013). For instance, P24 had never endured any sort of bullying:

‘I suppose not so much bullying cause I won't let somebody bully us, I'd fight back. I mean if somebody tried to stand over us, I'll just fire back. I won't accept it. And I'm in a job where the only person I really answer to is the captain. I don't care if somebody's trying to use the job to bully us, I can manipulate my way out of that’.

Interpersonal relationships require effort, patience and flexibility, traits found in the agreeableness aspect of personality (Witt et al., 2002). Employees who are exposed to inspirational motivation leadership, a facet of transformational leadership (Boies et al., 2015) and preferred by employees showing agreeableness (Kuhn, 2001), spend more time talking, a factor associated with trust in teams, perhaps due to the trust facet of agreeableness (Costa & McCrae, 1992). Effective leadership facilitates communication between team members, which in turn allows workers to shape perceptions about the trustworthiness of colleagues, leading to increased performance on tasks and less errors. As open communication is fostered through leadership, team members are more comfortable with communicating openly about task-related matters and are more likely to offer new ideas and suggestions (Boies et al., 2015). On the contrary, tyrannical leadership correlates with worker anxiety (Kant et al., 2013) and exists in polarity to agreeableness (Keller, 1999). Tyrannical leaders are overbearing, power-seeking, aggressive and manipulative (Keller, 1999). P26 had witnessed managers who put production ahead of people:

'I've seen managers and supervisors with that old school mentality of, OK, let's go, go, go grind, hustle. Let's get this done as quick as we can. I don't care. But that's my number one and everything else is number two. And you can really tell that that sort of mentality and that sort of message that's being driven is really causing that sense of anxiety, that sense of they don't really have a purpose. They're just a number on a page or a person completing work who's there for two weeks and then they're off and they're not part of that team'.

5.3.11 In what way have you found that the personality of co-workers affects employee mental health?

As offshore workers are bound by location to remain on the facility, they do not have the option to withdraw or take time away from the work environment. Friction between employees can occur where there are aggressive and high-motivated individuals. Driven personalities may conflict with the same type of people, or with *'people who are more anxious, slower thinkers'* (P26). When there are interpersonal conflicts in the workplace, the inability to remove themselves from that environment may worsen the effects of conflict on their mental health (Parker et al., 2018). Negative attitudes and behaviour can harm group processes and have adverse effects on teams, even if it is just one negative individual, particularly when the group is especially interdependent (Felps et al., 2006), as is the case on offshore oil and gas facilities:

'That can one person can change a swing, you know, I bad egg on a on a boat and the whole morale changes. You know, like 2 swings ago I had this IR there and he was a nice enough guy, but he was just... he was a liar, he was hopeless at his job, didn't do anything he was meant to be doing, he was dangerous. And he was just a... and it just ate away at everyone's morale and it just, yeah, it was toxic' (P12).

Negative co-workers generate harmful environments, where perceptions of trust and fairness are undermined. Moreover, the success of the group will be compromised due to skewed individual perceptions and weakened group processes, resulting in dissatisfied workers who will perform poorly. Rather than play a key role in their work, employees will eagerly anticipate the end of their working day (Felps et al., 2006), a point noted by P29 in response to being asked how they felt about their roster. Negative individuals can impact others relatively easily, simply through others observing them, suggest Hatfield et al. (1993).

'I had an electrician, I had a sparky and we were doing this assessment and he was just so negative doing this assessment and he was mentioning stuff to me, which is not quite right. It isn't covered by legislation and he got really quite toxic about it. You know, I just had to stop it while we were doing it' (P28).

In team environments, agreeable individuals tend to work in a cooperative rather than competitive manner, are more capable of successful conflict resolution and are seen as more

likeable by colleagues due to their helpful and sympathetic demeanour (Witt et al., 2002). Personality compatibilities may be important in the role of team productivity. In their study of production levels in the construction industry, Florez et al. (2020) found a high correlation between personality factors and productivity. Conscientiousness and agreeableness showed strong significant associations with levels of productivity. Agreeableness facilitates successful team performance due to the preference for interpersonal cooperation (Lopez-Perry, 2020; Peeters et al., 2006) and is particularly effective when individuals score similarly on agreeableness levels (Florez et al., 2020), providing weight to the notion that agreeable individuals desire interpersonal harmony.

The personality of managers can strengthen or impede employee engagement (Howell, 2017). Rigid work environments and managers who are motivated by money and economic outcomes have negative associations with levels of engagement, while openness traits, such as curiosity and inquisitiveness can help to establish an open work culture, enhancing team performance (Howell, 2017). It is especially difficult to work offshore for people who speak English as a second language, or for those who do not fit masculine norms of sex roles:

'I think it can be especially hard for people who speak English as a second language and people who identify as LGBTQ – the last rig I was on, one of the senior supervisors from the contractor side was very homophobic and most people were aware of it but didn't do anything about it. I have also seen people from the rig contractor be quite rude to third parties especially if they can't understand their accent if English is their second language, and I'm sure this has an impact on their mental health' (P29).

In multinational teams, there may be many different cultures and languages. Tenzer et al. (2014) showed that language barriers among these teams generate cognitive reactions which accommodate the association between linguistic barriers and facets of trustworthiness, leading to a mediation between language barriers and the formation of trust within teams. In other words, language barriers within the team impacted employee cognitions, which in turn influenced the perception of trustworthiness of team members. A lack of language-based knowledge undermined perceived occupational competence and thus perceived trustworthiness. Deeper divisions may be avoided through the ability to reflect on one's own prejudiced behaviour towards ethnically or linguistically diverse populations and through cultural competence, whereby the effort is made to understand and respect the values and beliefs of various cultures and ethnicities (Kitada & Langaker, 2016). As maritime facilities are gendered through the construction of seafarer's identities and through the systems of the organisational culture of male-dominated industries, both women and sexually diverse

individuals are at increased risk of sexual harassment. While gender diverse people generally report harassment behaviours in the form of intrusive questioning about sexuality, women, particularly linguistically and culturally diverse women, are more likely to undergo harassment which results from racial and sexual stereotypes (Champions of Change Coalition, 2020).

5.3.12 Does stigma seem to affect poor mental health help-seeking and reporting?

Direct or indirect discrimination against mental health conditions is against the law under The Australia Disability Discrimination Act 1992 (Cth) (16). This includes an unwillingness by an employer to hire a worker with a mental health condition. However, this indirect type of discrimination evidently still persists unquestioned (Stratton et al., 2018). Understanding the mental health needs of employees is facilitated by mental health training at a managerial level, enabling the clarification of supervisor roles and obligations as well as fostering the understanding of issues. It is indisputable that providing training to managers will increase the knowledge they have regarding mental health, but in actuality it can also result in improvements to supervisor behaviour towards employees who are affected by mental health issues (Gayed et al., 2018). Many participants were confident that stigma was lessening in response to mental illness, mainly due to the general shift in society. It was acknowledged that attitudes towards mental illness were changing for the better and that people were more understanding now than in the past:

'Yeah, if you would have said it back then and like I went to sea in the early 90s and it was still a lot of old guys that have been at sea a long time. If you said that, they'd be thinking about getting you off in the next port because they'd be thinking I was gonna flip out, you know...but there's still the old-fashioned machismo thing. They walk in tough and you gotta put on this facade that, like I'm coming in here and no one's gonna get... and then I get to our joint and they're pretty refreshed and I go 'Ohh geez. These guys are talking about everything' (P6).

P7 attributes the change in attitudes to the programs run offshore, particularly during the COVID-19 pandemic: *'I think through that time a lot of people put their hand up. So I think that's sort of starting to change a bit, yeah'*. Any remaining stigma appears to have its roots in the older generation of workers, and it was clear from the analysis that stigma surrounding help-seeking and the admission of experiencing poor mental health was perceived as a generational trend:

'It's a lot better than it was, I would say probably us older blokes like myself, here's probably still a little bit around to a degree. Just because we're probably dinosaurs in the industry and came through at a different time, I think the younger people I think are definitely managing it a lot better than what we did. And I would say as well the

seaman's union seemed to have, the Maritime Union, seem to be really championing the cause and doing some good work around awareness and the like' (P22).

Workers who were younger reported poorer mental health during the COVID-19 pandemic (Asare et al., 2021; Brooks et al., 2020), perhaps due to lower levels of emotional stability (Carstensen et al., 2011) and fewer opportunities to adapt to the offshore environment and FIFO way of life (Asare et al., 2021).

The attitudes of older workers can be challenging. According to P20:

'Mostly, you get the odd person that's a bit of a conspiracy theorist that comes on board, but that constant thing is usually the older people and they're very repetitive, too, with things that they say, and that affects everybody mentally I think'

Older employees are more prone to have attitudes against seeking help, a finding Henry et al. (2013) and Matthews et al. (2021) reported as a barrier to help-seeking in their FIFO sample. Several participants stated that older workers were more prone to viewing seeking help as a weakness:

'I find that some of the older guys, the old sea dogs, have been at sea 40 years, they don't, most of the time they're fine. Like they don't talk about it, they're very hardened, like and I find that the younger crew and younger people, they feel like they're more missing out on things' (P12).

Most of P10's colleagues were 10 to 20 years older and he could not imagine mental health being a common thing for them to discuss. Likewise, P5 felt that the older workforce were more prone to the mentality that seeking help for poor mental health was affected by stigma *'because it's a little bit more old school, bit of a tough man thing'* (P5). Furthermore, seeking help for a mental health issue is not recognised as a worthy virtue within organisations (Matthews et al., 2021), particularly as the environment is male dominated. P29 thought that stigma would affect reporting more for men than women and that people tend to assume that if they are having mental health problems, they may be deemed unfit to work offshore and might lose their jobs. Mental toughness in the corporate world is a respected trait, apparently revealing an employee's competence and ability (Matthews et al., 2021). P10, however, would be happy enough to seek external mental health services *'but I probably wouldn't do it through work. I think I'd have to quite trust someone at work to talk to them about it. Where I'd probably find it easy to see a psychologist on land than talk to management or a co-worker'*. P4's comment explained the perceived concerns felt by co-workers regarding poor mental health and safety:

'Oh yeah, I think there would be for sure (stigma around help-seeking) because people, especially in diving, you don't want to lose trust in somebody. You know, you are trusting your life because if someone's going to come rescue you, it could be that guy. And it's very much any weakness... do not show any weakness you know? Probably less so above the water, but it's still the same. It's still very much a macho... that classic machismo or whatever it is'.

A similar comment by P20 in response to a later question on the negative financial effects of poor mental health revealed fear of a introducing a hazard into the workplace due to a mental health diagnosis:

'So... being at sea, I kind of understand a little bit why, I mean, if somebody who's been diagnosed with something that could potentially create a hazard on a vessel'.

Moreover, individuals are concerned about the effectiveness of treatment, where they may feel pessimistic about the outcomes, or fear hospitalisation, and may prefer to attempt to manage themselves (Hom et al., 2015).

There is less stigma about asking for help according to P27. Asking open-ended questions to individuals who are believed by others to be suffering from poor mental health is the key to reaching those who may not feel comfortable sharing any issue they are having. If a colleague believes that an employee needs help, they may approach a supervisor, who will escalate the issue if needed. Open-ended questions and clear and straightforward communication through an informal chat typically enables individuals to open up (P27).

Mates before management

There was a clear preference amongst participants to discuss things with their colleagues rather than with management or through an official channel. A tight-knit community, the offshore oil and gas workforce generally look out for each other. Echoing Henry et al. (2013) and Voysey's (2012) studies, employees favour leaning on each other, whereby work colleagues become substitutes for absent family (Krohne & Magnussen, 2011; Ulven, 2009). Support from co-workers creates a strong bond and a sense of unity amongst offshore workers (Mette et al., 2017), implying that employees would feel more comfortable in turning to each other:

'I'm in a group of 10 blokes and we sort of just more or less look out after ourselves. We're pretty tight knit, so the company side of things... I'd probably talk to them first or they could probably see something's not right, I'd probably go to those blokes before I went to the company' (P7).

Although it is established that unwillingness to seek help has a negative impact on mental health (Parker et al., 2018), results showed that employees themselves are changing the workplace for the better in that respect. When asked if there was still stigma surrounding help-seeking for mental health, P6 insisted:

'Not with us, not with us, I'd be proud to say that in our workplace, if you went back ten years and to some of those managers that I was talking about back then, definitely. They would have zero regards for peoples' mental health, they'd laugh it off, make comment... but we've really changed the workplace atmosphere and I'd probably say for [name], and then all the HSRs out there, we're pretty proud of it where we've got it. And you know, last year really proved that that stigma is gone because a lot of people did have a lot of mental issues and everybody sort of gathered around, it was quite good'

Positive workplace relationships between co-workers are vital, particularly in teams and where so much time is spent together (Brooks & Greenberg, 2022). Support from colleagues has been identified by several authors to reduce fatigue for maritime workers (Andrei et al., 2020; Håvold, 2015; Pauksztat, 2017) and lower stress levels (Håvold, 2015; Pauksztat, 2017). As participants in Toth and Dewa's (2014) study revealed, colleagues are the ones who lift each other up, who encourage one another and provide a familiarity essential to living offshore (Krohne & Magnussen, 2011). Alternatively, frequent disputes between different organisational departments and job levels can worsen loneliness, especially when employees are away from home for long periods (Brooks & Greenberg, 2022). Perhaps that is why organisations utilise employees as peer support workers.

For those diagnosed with a psychological disorder, choosing to disclose a mental health issue in the workplace is generally guided by stigma. Attempting to understand the process by which employees decide not to disclose, Toth and Dewa (2014) identified a risk-benefit assessment approach, where individuals weigh up the advantages and disadvantages of disclosure within their current context. However, it must be noted that employees situated themselves at a default point of nondisclosure which is heightened by concern that they may be stigmatised. In certain instances there have been breaches in confidentiality:

'Medics are good, company - basically they just send out emails you know... ring one of those helplines... that's their answer to mental health, reach out to... they've got their own private company that deal with it as well but from some of the feedback I've heard, people have rung the company one and the information's got back to management, you know who it was and what their situation was. They say it's not supposed to do, it's supposed to be confidential. So I don't think there's too much trust in that' (P3).

Likewise, P9 revealed that there is a certain amount of reluctance for employees that need help to open up in general:

'I know one guy left a little while ago and he was having troubles,. And he was a really lovely bloke and whereas maybe it should have been kept personal, it got out that he'd left because he was having mental issues, a bit depressed and all that stuff, so I thought oh, that's not very nice, that it got shared, his personal information'.

The concern of disclosing about mental health to someone in a supervisory role was in part due to fear of repercussions. For employees confiding in managers or supervisors, significantly higher levels of trust are required than when discussing with co-workers. Fears of discussing a mental health problem was associated with fear of job loss (P4, P20), a finding also made by Milliken et al. (2003) and Toth and Dewa (2014). Adverse financial impacts and the threat of job loss or change in role were also factors influencing decisions around disclosure in Stratton et al.'s (2018) qualitative study. The imbalance of power between a supervisory position and an employee position means that managerial influences can affect promotions, assigned work tasks, inclusion in meetings and trips and even whether a casual employee will receive further work with the company, all consequences of speaking up about other issues for participants in this study.

While Granger (2000) found that employees preferred to talk to managers about their mental health due to fears of disapproval from co-workers, this was not the case in this study. In fact, negative outcomes for participants included a job contract not being renewed and being overlooked for a promotion (also found by Milliken et al., 2003 and Toth & Dewa, 2014). P22 was concerned about future job applications and consequently bore the cost themselves, a finding also reported by Stratton et al. (2018), where participants were willing to incur personal costs to prevent having to disclose to their employers. P22 explained:

'I don't honestly know (if there is an economic cost to organisations due to poor mental health) 'cause again probably part of my stigma was that I went and got my own psychologist to help. I didn't want anything through the books or on the company in case they, if you go for another job or something like that, then there's a history there, so it's probably my own fault but I didn't do any of it through the company. I did it all privately'.

These findings share some of Matthews et al.'s (2021) subthemes on the barriers to utilising workplace EAPs. As expressed by some participants, there is a distrust regarding the guarantee of organisational confidentiality as well as an unwillingness to impart details of personal issues with strangers, or someone who is outside their circle of support. Here, employees will find alternative avenues of support, Employees have expressed concern that managers may no

longer see an employee who has sought help for mental health issues as a potential candidate for a leadership role.

Maintaining boundaries and ensuring confidentiality are highly important to workers (Toth & Dewa, 2014), and when organisational systems have been shown to be low in trust, there is likely to be a high level of stress, affecting both supervisor and employee mental wellbeing. Furthermore, work environments low in trust compromise psychological safety (Pfeifer & Vessey, 2019), creating stress and distraction for employers who are anxious as to what support they will receive, if any (Tschannen-Moran & Gareis, 2015). Although systems of reporting are made available, further breaches in confidentiality were revealed by P20, who used the whistleblowing system as an example:

‘The system’s there for you to go to now, there’s lots of things have changed since in the 12 years I have been working, there is a system there. There’s a whistleblowing system, for example, I’ll just use this now, this is a bit different from mental health. There’s a whistleblowing system and a few people have used that whistle blowing system and it’s supposed to be anonymous. But those people have found out afterwards that it wasn’t anonymous. They were known as the whistle blowers and this wasn’t anything for any incidences between crew or anything like that’.

This shows the scope in which negative connotations around poor mental health can be influenced, particularly if organisations are involved and not supportive. Management can ensure that stigma is adequately addressed, so that accessing professional services is not hindered by employee distress (Bowers et al., 2018).

5.3.13 Have you ever had a psychological illness or suffered from poor mental health? If ‘Yes’: Has having a psychological illness or poor mental health had an effect on you financially?

The majority of participants answered ‘No’ to this question. P5 stated that anxiety had been present, but generally in their youth. Several participants answered that they had experienced poor mental health or a mental health disorder. P10, P12, P24 and P29 stated that they had suffered from depression, and P11 had experienced stress. P22 had suffered with anxiety and panic attacks for quite some time. P29 had suffered with anxiety and depression during the COVID-19 pandemic when separated from their partner. Two participants answered with ‘Probably’; P7 did not elaborate further on what condition they may have had, but disclosed that many workers were negatively affected by the border closures in response to the COVID-19 pandemic:

'Yeah, without being home... you're off the ship, but you're not home, so that was getting us down. And we used each other to get us through that time. But some people? Yeah, it was worse than others. And you could see blokes who you thought were normally on their game just... yeah it was mad really. And I was probably to a degree one of them, more than what I thought. But it was just so, like, cooked by the end, you know?' (P7)

P13 stated that they thought that this was probably depression:

'I haven't been diagnosed with either, but probably I'd say, admittedly, I'm probably on the spectrum somewhere and you know probably throughout my life and adult life, obviously there's times when you're probably depressed and stuff like that, but I haven't been clinically diagnosed with either'.

P18 answered 'No', but then revealed that there had been periods of poor mental health. Interestingly, some of those who identified that they may have or may have had poor mental health but had not sought an official diagnosis stated they felt a stigma around help-seeking still persisted:

'Well, I think there is an element of stigma there, because a lot of people would just stand up and say oh I've pulled my hamstring last time on leave, but they wouldn't necessarily say... we're still not at that point where we can stand up and say well, last week I was depressed. So I think stigma's still there, you now, and that's a societal thing' (P18)

'I think it takes a bit of courage for people to say, hey, look, I wouldn't mind talking to someone, I think it takes a bit of courage and it is still, I think there's still an element of like Oh can't you just sort of talk it out with your mates or, you know, I think there's still a stigma in the workplace around that' (P13)

An aversion to accessing professional support services, identified in this and other studies (Henry et al., 2013; Shidhaye & Kermode, 2013; Torkington et al., 2011) could mean that although participants feel that they may at times suffer from poor mental health or illness, they are consequently missing an opportunity for help (Gardner et al., 2018) and lacking a diagnosis from a professional. P7, who had identified hazards associated with pandemic border closures, expressed that stigma around help-seeking likely existed *'until we started running these programs'*, highlighting the importance of mental health programs in the workplace. Participation in a psychosocial program for seafarers can moderate the impacts of long offshore swings, guarding against the effects of long rosters on perceived stress (McVeigh, 2021). P24 had turned to more natural remedies after being continually given antidepressants. Feeling that this was not fixing the problem, but rather subduing the issue, they started taking fish oil and saw a counsellor for a couple of sessions. P12 relied on friends and family after the breakup of

a relationship. During the pandemic P29 was separated from their partner for the best part of two years:

'I experienced anxiety and depression quite a lot, I was working in the office during this time. I took one day off from the office during this period and started seeing a psychologist for a few months'.

5.3.14 Have there been any economic effects on your employer or its employees from a worker being stressed or from having poor mental health? If yes, describe the effects.

Generally speaking, employees had not taken time off work for a psychological illness and felt they were not knowledgeable about the economic effects from stress or poor mental health. However, it was felt that the relationship between mental health and adverse financial effects can also work in reverse:

'When time off and pay is negatively adjusted this can also affect people's mental health, such as their back-to-back has COVID/is sick and they need to stay on the rig longer' (P29)

When asked if they knew of any economic effects on employers or employees due to poor mental health, P20 pointed to lack of disclosure, which refers again to concerns of stigma and lack of trust:

'Because they know that they won't get a job if they if they say look, I'm ADD, ADHD or PTSD or whatever it might be wrong with them, they tend to hide it and say they haven't got anything wrong with them because they know that their company immediately will find somebody that hasn't got that'...' well we do have people unfortunately, it happens every year. We do have the odd person that jumps off the back of the boat in the middle of the night. You know they can't stop anybody from doing that because most of the time, nobody knows it's gonna happen anyway. But if they knowingly take somebody on that is...that hasn't got a... you know a doctor can obviously say this is your condition and it's stabilized with, maybe it's with drugs or with psychotherapy or whatever it is. I would say that any employer of somebody that's gonna be in the middle of an ocean in the middle of nowhere would have to be relatively hesitant to take somebody on with a condition like that. I think that would be fair to say really. But not to not employ them because there's so many different things that could be wrong with somebody and some of them are manageable and some of them aren't I guess'.

Disclosing a mental health condition raises the possibility for casual workers of not being reemployed, but also for workers not being hired in the first place. As the Education and Health Standing Committee (2014) reported, if a manager has a choice of 15 employees for a position,

they will not ‘choose the one who has depression’ (p. 74). Further support for this comes from Brohan et al. (2012), who found that companies would be less likely to employ someone who had disclosed that they had a mental illness and although supervisors state a preference for disclosure, they still believe it to be a substantial risk to employ someone who has declared a mental disorder (Brohan et al., 2010). As deliberately concealing poor psychological health is mentally draining, leaving less resources to cope with the demanding work environment (DeJordy, 2008), it is in the best interests of both organisations and employees to work towards removing stigma and improving help seeking behaviours in order to facilitate disclosure. However, the ideal solution would be to prevent poor mental health in the first place. Unfortunately, early intervention for psychological issues is doubtful where there is a low level of help-seeking (Vojnovic et al., 2014).

5.3.15 Employer provided mental health support

Workplaces are gradually improving their provision of mental health resources for employees. With the introduction of a Code of Practice for psychosocial hazards in the workplace (COSHH, 2022), it is hoped that organisations within the offshore sector will follow suit. Participants were asked the following three questions about employer provided mental health support:

- *Does your employer provide mental health education? If yes, please describe the education provided?*
- *Does your employer implement any other strategies for mental health promotion or support? If yes, please describe these strategies.*
- *What interventions or approaches does the company have to develop employee resilience?*

Whilst it is true that organisations link productivity to profitability, they are encouraged to advocate workplace mental health education and promotion as a strategy to ensure that employees are influenced in a positive manner. When employers focused on employee wellbeing rather than profit during the introduction of workplace approaches to wellbeing, the employers were more committed to implementing the strategies, which may increase the uptake of workplace wellbeing programs and initiatives (Pescud et al., 2015).

In terms of preventative measures, as it cannot be estimated who may experience poor mental health in the future (for example, P7’s response to question 13 demonstrated surprise at the

effects of the COVID-19 pandemic on those thought to be the most resilient), an appropriate solution would be that measures to prevent poor mental health are applied widely, so as to capture employees who are hesitant to seek help and to minimise any stigma associated with poor mental health (Taubman et al., 2019). In saying that, there are numerous organisations that incorporate wellness programs into daily life offshore. The most common response to whether their organisation provided mental health education was that the company provided an Employee Assistance Program (EAP).

Employee Assistance Programs

Employee Assistance Programs (EAPs) are funded by the organisation and provide employees and their families with a variety of support and assistance with mental health and wellbeing (Matthews et al., 2021). They are individually tailored and aim to decrease the likelihood of negative impacts on the working environment (Compton & McManus, 2015). In this study, Employee Assistance Programs were identified as being part of the majority of workplaces (P1, P4, P6, P10, P11, P13, P15, P18, P19, P21, P26-P29) but are notoriously underutilised (Dimoff & Kelloway, 2019; Matthews et al., 2021). EAPs are recommended by DMIRS (2022c) for workplace psychosocial risk factors such as burnout and poor support. P6 described their EAP as ‘very good’, however, much of the time people do not know how it works (P11). Perceived information deficits undermine workplace creativity because employees begin to lose enthusiasm about their work, responding negatively to the perceived unfairness of the lack of access to information. Furthermore, the indifference felt about their contributions to the effectiveness of an organisation results in unwillingness to devote energy to generating new concepts or ideas (De Clercq & Pereira, 2021).

Lending weight to the notion that the flow of information encourages collaboration and thus performance, P6, as a Health and Safety Representative (HSR) and a Mental Health 1st Aider, appreciated the fact that they were able to steer colleagues towards the EAP, however this was a process which took some facilitation due to the program’s lack of use. The EAP system was a fairly unknown resource to employees until 2021, when it became utilised quite heavily. P6 facilitated the passing of information from the EAP provider to employees so that they were ‘aware of what happens once they picked up the phone’.

As Sampson and Ellis (2021) point out, many organisations do not consider it necessary to provide means of minimising the effect of offshore stressors on employees’ mental health. P10

was unaware of any mental health education and stated that there was only an EAP available to employees. Furthermore, interventions tend not to be proactive, but rather reactive, offshore. According to P11, a company will inform employees about the EAP *'but the EAP, it's reactive. We don't have anything that's preventative at all'* (P11). Although many interventions are well meant, the lack of proactive initiatives to improve the conditions on vessels and facilities means that the existing stressors are only being dealt with retrospectively. As such, current approaches may have only a small impact on mental health. Furthermore, they are not perceived by crew members to be especially beneficial or enjoyable (Sampson & Ellis, 2021). Human resource departments and those who deliver EAPs need to maintain clear and regular communication, while also ensuring that employees have comprehensive information regarding the program and its availability (Compton & McManus, 2015).

Nevertheless, for proactive measures to be taken, there needs to be an understanding not only of what resources are available, but an effort on the part of employees to participate in what is offered. P11 pointed out the low attendance rates when interventions are delivered, stating that the Mental Health 1st Aid course did not attract many participants. Poor rates in utilising mental health resources may be countered through the further promotion of workplace resources and by management learning to recognise the signs of worsening mental health in their employees. Co-workers should be aware of what is needed for those experiencing a decrease in mental wellness and also come to know the resources available for their colleagues (Dimoff et al., 2016). Further support for the benefits of implementing such a program was revealed by Dimoff et al. (2016), who found a decrease in the average duration of mental health disability claims, which were reduced from 70.95 days before intervention to 52.16 days after the program was implemented. Lower rates of illness and harm and higher levels of wellness are associated with a proactive approach according to Parker et al. (2018).

Initiating the increase of the use of mental health resources will eventually lead to a higher rate of long-term use, significantly increasing the likelihood of cost savings in relation to underutilised mental health initiatives that are already part of an organisation's expenditure (Dimoff & Kelloway, 2019). Other concerns with the EAP system echo back to the issue of trust in a process that may not be fully confidential:

A lot of people are concerned to use it in the event that if the employer asked for it, they've got access to it and may be used wrongfully. So that's... I suppose that's why we've tried to sort of push [EAP name] or an agreed third-party service. I think people if they're a bit, what's the word? if they're a bit cautious to use a service like that in the

idea it might be used against their employment, they're not really accepting of it I guess. So that's probably the issue 'cause I suppose it's a trust factor - will that information go back to my employer?' (P13)

Peer support workers

Peer workers are elected and trained members of staff, akin to health and safety representatives, who deal directly with supporting employees' mental health (P1). In high-risk or unpredictable work environments, peer support programs are often implemented and used in response to distressing work-related events (Golan et al., 2010). As a result of the large number of employees dealing with poor mental health during the COVID-19 pandemic, P1's organisation implemented the Resource and Energy Mental Health course, which '*provides the team with the necessary skills to support staff who are suffering from mental health problems*'. In P8's company, there are peer workers, but also an upper management that are very much engaged in the provision of mental health training and support. Managers that have participated in workplace mental health training are more inclined to disclose information to employees about mental health and appropriate and available resources (Dimoff & Kelloway, 2019), a vital element in tackling barriers to communication between management and employees considering that 85% of participants in Milliken et al.'s (2003) study reported that they felt they were unable to raise a concern to a superior. Peer support groups or programs can effectively mitigate the stigma associated with injury, particularly when peers have knowledge through their own lived experience of injury. Peer supporters with lived experience are able to pass on their knowledge of the processes surrounding injury management and offer guidance and psychological support (Casey et al., 2021).

Mental health training also facilitated management to promote the use of mental health facilities, resulting in an increase in employees willingly seeking help (Dimoff & Kelloway, 2019). Supportive management is identified as an approach to minimise psychosocial hazards in the workplace. Moreover, a supportive culture facilitates communication and encourages reporting. Even in roles where high work demands are present, detrimental effects on health can be minimised through supportive leadership (DMIRS, 2022c). On P7's facility, employees are able to speak up if they feel that they are not fit for work that morning and would not be expected to start their shift.

Psychology and counselling services

Workers can access an external psychologist or mental health practitioner (P1, P13, P8, P16, P20, P23, P26, P27), however some employees continue to avoid treatment through their organisation due to fear of long-term consequences to their future employment (P22). Counselling services are provided free of charge and extend to workers' families. P24 had utilised the service, although it had been their partner who had undergone counselling. It is usually heavily promoted (P23). P20 accessed a counselling service provided through work due to an incident with another employee. Standard policy meant 6 sessions were automatically granted, with the option of adding as many as were needed. Therapy sessions are available not just for work-related issues. P20 stated that a psychologist was available to discuss a diverse range of issues from stress to marriage and sexual problems and that the employer would pay for six sessions. On P26's facility, a psychologist service operates slightly differently:

'I know on other facilities that we have I think around Christmas time normally we send out a clinical psychologist that just kind of sits there for a week and open door. If you wanna go talk to them, go talk to them, which I think is fantastic'.

P28's facility employs a psychologist in more of a research capacity:

'They might bring in a specialist, like a psychologist comes on board and they just do a survey to see what's going on, a little bit like what you're doing, ask a lot of questions and get people's different opinions. Then they formulate a report and send it off to management'.

P25 had also used the resources made available through the organisation and had utilised the counselling service together with their wife in order to work through the issues caused by frequent separation from the family. Ultimately though, the solution had been to cease working offshore altogether and they were now office-based, consistent with Parker et al.'s (2018) findings that a former employee had left FIFO work due to the stress from missing family events.

Psychological support services are effective in mitigating the impacts of self-stigma for injured employees. Psychology services such as counselling help workers to challenge internalised beliefs about being injured through treatments such as cognitive behavioural therapy. For mental health conditions, this is particularly important, as medical conditions with a lack of visible symptoms are more likely to draw scrutiny, increasing stigma through strengthening the stereotype of the malingering worker who exploits workers' compensation systems (Lippel, 2012).

Mental Health 1st Aid

Mental Health 1st Aid was designed to create awareness and understanding around mental health issues or enhance existing knowledge of mental health problems (Rodgers et al., 2021). The Mental Health 1st Aid course is acknowledged by many participants as an outstanding solution to assist colleagues who may be experiencing a decrease in mental wellness. Two decades ago, Kitchener and Jorm (2004) were championing the advantages of Mental Health 1st Aid training in the workplace, reporting that training increased the confidence of participants in encouraging help-seeking, as well as improving their own mental wellbeing. Although theirs was the first randomised controlled trial of the Mental Health 1st Aid training course, two years prior a trial with no control group revealed that participants had increased mental health knowledge and literacy. Furthermore, there was a decrease in stigmatisation and an increase in the assistance given to others. Overall, Mental Health 1st Aid training has been shown to be a valuable resource, having a positive influence on mental health literacy in the long term (Rodgers et al., 2021). Both P5 and P18 believed that the course should be promoted more:

‘I think the mental health 1st Aid would be really good for them to push a bit more, even across all industries really, I think it’s a good idea not just to... like do the inductions or awareness courses, but to actually have a little understanding of what to do if you come across someone that’s going through a bit of a tough time’ (P5).

In fact, P18 would rather the course be a compulsory component of working offshore:

‘We’ve been proactive out there and I’ve been fortunate that I’ve been exposed to some people that work in this space, and we’ve championed if you like people to do a Mental 1st Aid course, and I think that that should be broader than what it actually is. It should be the same as going to do your St John’s 1st Aid, we should just see that. The company’s been supportive in that particular regard, a culture there where people will seek help. We constantly raise it at safety meetings, that there are people on board that have done their Mental Health 1st Aid, who the EAPs are, that you’ve got medics there, you know. So, generally speaking, I’d like to think that we’re pretty good at that’.

The Mental Health 1st Aid course is heavily promoted in P6’s workplace and must be renewed every two years. As part of a health and safety initiative in P23’s organisation, there are staff members who have completed mental health training. An increase in mental health education and an introduction of the Mental Health 1st Aid training course is an initiative P11 would like to see in the workplace. P22 thought that the course was great, noting however that it had only been a recent addition to the facility. P14 stated that only a select few employees received training but did not specify what type of training. Safety concerns such as natural disasters (P9, P21, P22), and suicides (P6, P13, P18, P20) have the potential to cause severe distress in employees and in these circumstances, prompt mental health first aid is beneficial (Golan et

al., 2010), lending weight to the argument for making Mental Health 1st Aid compulsory (P5, P18).

Helplines

Some workers have access to a helpline, or hotline (P3, P12, P14, P19, P24, P28). Perhaps others had access, but did not mention it. However, as P24 stated, some employees do not like to use it due to the stigma attached to mental health, even though disclosure to the company is optional, highlighting a lack of trust in the confidentiality of the service. Contact details of helplines are openly displayed around both the office and the facility offshore (P23, P24, P28). Repeatedly, the trustworthiness of such interventions was questioned and concerns about confidentiality led one participant to reveal that employees are frightened that if others find out *'then as soon as they're fixed they mightn't take them back because it's mental health. It's not like a wound which heals and is sewed up and healed'* (P24). Although P28 believed that the helplines were confidential, the main issue was felt to be the discrepancy between corporate management and offshore workers' experiences:

'But just on management, one thing that tends to happen quite often, doesn't matter whether you're offshore or fly-in, fly-out, but when you're dealing with corporate management, who are based in the city, you know the head office, and they're not aware of the environment that you're working in and sometimes the translation can get lost though in what they expect people do'.

R U OK?

The R U OK initiative aims to prevent suicides through a national promotion of good mental health and aims to assist individuals, families and communities in helping people who are struggling with poor mental health (Maher, 2019). The R U OK? campaign appears to be a standard part of organisational mental health messaging offshore (P1, P12 P13, P19, P20, P24) and is a good platform to raise awareness (P1). Unfortunately, on some facilities, *'people are just sort of treating it as a bit of a joke'* (P9).

Mental Health Programs

One particular program featuring the lead singer of a folk group was very well received by employees when it was presented to them offshore. P18, whose organisation supplies both an EAP and Mental Health 1st Aid training, explained that several short videos were shown which was educational in workers terms (P6). P7 and P18 also spoke highly of this program. P17 referred to a mental health wellness program but did not give any further details.

Other education and services

Other mental health education, promotion and support provisions include workshops for mental health maintainability (P17), newsletters (P9), a once a month ‘dial-in’, which can be listened to at a later time (P9), e-learning (P5, P18), employee surveys (P2), posters (P2, P12, P26), mental health awareness week (P15), computer-based mental health awareness (P25, P27) and toolbox meetings (P1, P22). There are also confidential hotlines available for reporting discrimination, which are promoted when arriving onboard the rig (P29). There does not seem to be a lack of visual information throughout the workplace and there are plenty of posters and fliers with information displaying helpline numbers. P6, a Health and Safety Representative, consistently raises the topic of mental health, encouraging colleagues to talk rather than allowing issues to build up. P6 commended their organisation for its proactiveness in that regard.

Awareness raising is as important as training and development. Greater knowledge of the negative effects of poor mental health such as anxiety, depression and stress mean that leaders harbour less negative attitudes than those who are less informed of mental health, enabling them to support employees better (Dimoff et al., 2016).

‘We've actually got a number of, we call them, so a number of intra-company clubs at work that talk about mental health, cultural differences and neurodiversity. And pretty much a broad spectrum of preferences and how people are different. And they're more around building awareness or developing awareness of how different people actually are and how we can adapt to be more inclusive and be more accommodating’ ... ‘So we've got these intra-company clubs where they have events organized specifically for a specific area that might be of interest to management and then we've also got online training modules that help us and then again any additional learning is self-driven. But management are always available to have the discussions where needed’ (P27)

Dimoff et al.’s (2016) results signify that managers with higher levels of knowledge and confidence about mental health issues are more likely to use positive mental health promotion within the workplace. Furthermore, the positive outcomes of mental health awareness training in their study extended to reduced psychological claims for up to nine months, demonstrating the potential for cost reduction for organisations through early intervention by leaders who have developed the knowledge and capability in identifying and responding to the signs of stress.

Resilience significantly affects how employees deal with stress and their work performance (Pulla et al., 2012). During the study, a definition of resilience was added due to the uncertainty surrounding its meaning, as it is so difficult to define the cause of its emergence in individuals, especially in the context of the workplace:

'We talked about resilience a fair bit, but defining resilience for individuals is quite difficult, right? Because we're all resilient in different ways. I know my personal resilience levels are pretty good, right? I've been able to put up with some pretty crappy places and some pretty crappy times, and through some really horrible situations and still remain fairly positive, but I've seen others go to water. I've seen people literally have this post-traumatic stress from being in an incident. You know, we had a fire on an FPSO and as a result of that there were guys that just couldn't cope. They just didn't feel safe. Where I was like, OK, what happened? What was the failure? What did we do wrong? How do I fix it? How do I prevent it from happening again? So I'm looking for solutions all the time to make sure that we're safe. Different personality types, I guess (P21)

Perhaps this reflects the difficulty in pinpointing how to foster, or even establish, resilience in employees (Tonkin et al., 2018), rather than an unawareness of what resilience actually is. Presentations have been used in the workplace, stated P22, with information on how to build resilience. A training course on building resilience is offered by P29's workplace, however they stated: *'I don't know that it really helps much'*. P2 recalled a PowerPoint presentation but other interviewees indicated that there was no information or training about the subject. P8 reflected on the individual nature of resilience and that it was something that developed in response to external events, rather than something that was teachable:

'Most people just get more resilience as you get older and as you, you know, it just happens. Things happen to you and you build up that resilience over the years to factors that might be affecting you. You know, one of the big things, and I try and, maybe between peers, using experience of others, management will often make decisions that are just, like they've got no real idea of what's happening on board, but they've made a decision. Nothing's going to change it' (P8).

Nevertheless, some authors argue that organisations should be committing resources to strategies which aim to develop resilience in their workers (Kuntz et al, 2016; Luthans et al., 2006), especially as high resilience levels have been found to have higher return-to-work rates for both physical and psychological claims (Wyatt et al., 2017). Employee resilience has a positive relationship with organisational resilience, including at a managerial level, where resilience of managers moderates the link between emotion-focused coping and employee

resilience (Liang & Cao, 2021). Facets of resilience, for example emotional regulation, the ability to control impulses, realistic optimism and self-efficacy can be acquired and cultivated (Shatté et al., 2017). Yet bringing about effective change is down to both employees and employers.

It is clear from the responses that interventions for developing employee resilience in the workplace are minimal, which is disappointing considering that these can be implemented in the context of workplace behaviours, as opposed to personal beliefs about coping ability. Resilience as a construct appears to be defined in several different ways and employee resilience has traditionally been studied in the context of minor work-related stressors (Britt et al., 2016). Several authors make a clear distinction between individual resilience and employee resilience (Kuntz et al., 2016; Tonkin et al., 2018), while organisations have conventionally focused on training the individual to develop hardiness, most often centred around activities which by and large are unconnected to the demands and setting of the working environment (Kuntz et al., 2016) or to workplace behaviours (Tonkin et al., 2018). Using cooperative strategies towards challenges and an emphasis on acknowledging and learning from mistakes in order to develop workplace resilience is a relatively unexplored option, a discouraging finding considering that the more resources provided by the employer, the more resilient behaviours at work are implemented by employees (Tonkin et al., 2018). Furthermore, the most significant influence on employee resilience is a supportive employer (Kuntz et al., 2016).

5.3.16 In your experience, what have you found most beneficial for improving employee mental health?

For seafarers in Sampson and Ellis' (2021) study, participants identified several factors which would improve mental health when they are offshore. Support mitigates the psychosocial hazards present offshore, even when work demands are high (DMIRS, 2022c).

'I think making sure there is a support function, what I mean there is a professional support function as well as a localized support function. Make sure that your team understands that they've got each other's back. You know that's critical. Giving people the ability to call home and have those conversations, you know, going out of your way to get them home in a time of need or crisis, I think that's critical' (P21).

As emphasised throughout, many stressors in the offshore working environment can be managed proactively rather than reactively. Indeed, Sampson and Ellis (2021) did not find that

reactive measures such as counselling were among responses to suggestions of what may reduce anxiety and depression. While current organisational interventions such as EAPs, R U OK Day and other mental health interventions are a start, steering away from singular intervention measures towards more organisation-specific comprehensive approaches are needed (Feringa & Wentzel, 2020). Rather than aiming to improve employees' capacity to tolerate inadequate working conditions by focusing on reactive approaches like personal or self-help strategies, organisations might first address the underlying issues affecting mental wellbeing. While reactive interventions hold some benefit, they do not respond directly to stressors such as poor work-life balance, lack of reliable means of communication with family, absence of entertainment, inadequate recreational facilities, insecure work, and poor interpersonal relationships. Almost half of employers in this study, and most of the employees in Sampson and Ellis' (2021) study, identified practical improvements as an important step in working towards good mental health.

Maintaining strong team relationships is important to foster feelings of openness and provide employees with the confidence to be able to approach a team member or supervisor when they are experiencing decreased mental wellbeing. Moreover, being able to discuss mental health issues together in a relaxed and open setting (P1) is important because consistent difficulties remain present when men attempt to talk about their poor mental wellbeing (McKenzie et al., 2018), even with close friends and family (Olliffe & Phillips, 2008). The talking that is provided through EAPs can be viewed with some scepticism and not particularly being of benefit or providing solutions (Matthews et al., 2021). Furthermore, due to the mixed findings from research into EAP services, the effectiveness of different Employee Assistance Programs is difficult to determine. While Csiernik et al.'s (2021) review found that EAPs reduced absenteeism by 45 percent and resulted in cost savings of nearly 5 percent of lost hours per month, there is an absence of research over the last ten years investigating the cost-benefit analysis of EAP utilisation. While many employees take advantage of EAP services, this alone is not confirmation that they are effective. Moreover, some studies report a decrease in mental wellbeing after using counselling services through an EAP, resulting in subsequent referral to alternative services (Csiernik et al., 2021).

Moreover, males are more inclined to utilise less formal support (Henry et al., 2013), where they value openness and the ability to be emotionally expressive (McKenzie et al., 2018). Male dissociation from health care provisions lies with the personal and societal perception that the

obligation to promote mental health belongs to the individual (Oliffe & Phillips, 2008). The Mental Aid 1st Aid program is championed throughout the employees of the offshore oil and gas workforce. It is a credit to the employees interviewed that they promote it so well and are so invested in taking part:

'Definitely the training for the first aid mental health, that helped my understanding and gave me a better understanding of how to help others. That was very good. And then generally I would say just the people on board when being approached by them a few times when I was doing it a little bit rough, one of the boys come up and pat you on the back and ask how you were doing sort of thing or offer a word of advice even. Done tactfully that certainly helped me, yes' (P22).

Proactive strategies are key in reaching employees with the right message. Certain employees had taken the opportunity to promote and implement mental health programs. P18 has personally ensured that the organisation has incorporated mental health education and 1st Aid on the facility:

'Again, we've raised these issues with the company, we've put programs in place. People have been proactive in getting their Mental 1st Aid course, [company name] had a program there, they were rolling out mental health subjects in the workplace, for example, I remember there was a number of subjects we could bring up at a safety meeting, for example, one was negative thinking, or not negative thinking. They put a film clip on, and what that's all about and, you know, trying to be positive. So, like we've worked towards doing all of that. And we've experienced, you know ... we've had guys that have worked out there, you know, like one bloke that I know of, he was a rough n' tough scaffolder back in the day who took his life, you know and I'm in a job because a bloke, the person that had the job that I had, took his life. So, it's a live topic out there' (P18)

As evidenced in Rodgers et al.'s (2021) findings, Mental Health 1st Aid improved knowledge of mental health problems and confidence in helping someone with suffering from a mental health problem. Ashoorian et al. (2019) found that participants reported a 94% increase in confidence following Mental Health 1st Aid training. The series of short videos was popular and seemed to speak to both the masculine aspect and industrial context of the offshore environment. Participants appreciated the 'workers terms' (P6) used by the presenter:

'I think that program that we run here. That's probably the best because I think you can sometimes, you're going offshore, there's some pretty burly tough blokes. But when we ran that course, you could hear a pin drop. You know, people are just glued to the video about... and the actual guy was the bloke from Redgum, you know Redgum. So he was the voice over. I know his voice came across pretty good and he was just driving a car out in the back country and he starts talking about different things and you can see all of a sudden no one was talking to each other, they were all just listening to this video. You know, they're right into it' (P7).

According to Seaton et al. (2019), there are very few interventions that consider the characteristics of male-dominated workplaces that involve long working hours, high job demands and precarious employment. A type of forced resilience and independence pervaded through the culture of these workplaces, however the upshot was that mental wellbeing and poor mental health were not open for discussion. Nevertheless, Seaton et al.'s (2019) participants found it acceptable to discuss stress. In a masculine culture, stress is accepted as part of life, something that everyone deals with, but nonetheless something to battle against and something to be overcome. Discourse about mental health only appeared to be acceptable when discussing stress, whereas mental wellbeing dialogue was perceived negatively, its language seen by employees as comparable with the terminology of mental illnesses. Similarly, offshore workers felt it might be appropriate to discuss an exterior stressor, but not individual mental health if it was likely to reveal a perceived personal weakness:

'I suppose if it's related to something going on with your family or anything like that. If it's something personal, what's going on with yourself which is an issue that you're working through, I don't think anybody would share that' (P4).

Sharing accommodation is a recurrent theme and an ongoing grievance for offshore oil and gas workers. In addition to poor quality accommodation, changing cabins regularly, or hot bedding, adds more stress and should be prevented as much as possible (Kirsch & Barclay, 2014; Torkington et al., 2011; Watts, 2004), preventing the creation of a home environment, where workers would normally be able to personalise their sleeping environment (Colquhoun et al., 2016):

'When you have a moteling situation, where you're having to pack up everything, go and lock all your stuff away, come back and unpack, it's just that transient nature of doing that to people, it just causes stress and then you have the people administering it trying to manage it. You know, it's difficult for them too. They're in the same situation and you know, they're not getting their rooms and they come in or their room's not ready or my room's not made-up or my air conditioner is broken' (P21).

Other participants stated that it was small things that escalated and resulted in poor mental health. As stated, a lack of space, crowding and a lack of recreational facilities impact interpersonal relationships (P22), muster drill times affect sleep (P29) and seemingly small irritants inflate feelings of dissatisfaction. A combination of factors also raises stress levels:

'I think it's a combination of things, to be honest, I think, you know, suitable rosters, giving people the right amount of time on and off. You know, equal time rosters are great, but you have to supplement them with leave. I think when you got people who are away from their families, you just don't want them away more than they're at home. You

know you want them to be that, that balance, whether that's a 55/45, 60/40, 30/70, whatever it is, it needs to be in the positive for the worker? Because you're not doing 12 hours a day' (P21).

P14 suggested training for all employees, so that they are able to understand what people can be going through on a daily basis. P22 would appreciate *'a bit of a bonding session when, you know, either management come out and visit the vessel and give a bit of a talk and give a bit of a presentation on mental health, something like that. I think that sits well with the team'*. Management is the driving force for organisational culture and improving mental health outcomes in the workplace. Leadership styles have been a recurring theme throughout the interviews (P6, P21, P22, P26-P29) and is also supported by literature (Boies et al., 2015; DMIRS, 2022c; Skogstad et al., 2015). Encouraging help seeking for poor mental health needs to be encouraged from management level down, both on operator and contractor sides (P29), however improving mental health is partly down to the employee:

'I think really, it's up to the individual too, but I hope also it's gotta be driven by the leadership team as well. Because you know as the leadership team, whatever they're deciding to do, they drive that down to the people on the front line who are doing the work. And it's important to have that trust and understanding that, hey, listen, you know, if I'm locked down that well today, I can quite easily go hey, listen, John, I wanna have a chat with you. Things like that' (P28).

Another element for improving employee mental health was identified as engagement and accountability:

'I think engagement, so engagement and accountability. And when I say accountability, I don't mean blaming somebody but give that sense of ownership that you belong. Everybody wants to work in the company that they work and they want to feel like they're valued' (P4).

5.3.17 Has the COVID-19 pandemic had any effect on your mental health? If so why?

While some interviewees felt that they had been minimally impacted by the COVID-19 pandemic (P3, P8-P12, P19, P25, P27), the effects of quarantine, border closures, vaccine mandates and extended rosters have been clear on others. Separation from family and friends is a pre-existing psychological hazard for offshore oil and gas workers and during the pandemic many employees faced months away from their support network at home, leading NOPSEMA (2020b) to issue a warning bulletin. As offshore oil and gas employees were already classed as a vulnerable demographic before the pandemic (Feringa & Wentzel, 2020), interventions that provide the necessary support to high-risk groups should be supported by organisations where possible (Asare et al., 2021).

Extended periods away from home

As offshore workers already spend extended periods away from home on a regular basis, normal avenues of support are limited. When rosters were extended or quarantine and isolation requirements lengthened time away from home, some participants did not see their families for months. P14 found extended periods away from the family stressful, as well as having to move interstate. Further anxiety came from concerns about loss of work. P29 was separated from their partner who was overseas for two years and was not able to see their family much during that time. P16 found the inability to travel to see family and the fact that family were unable to visit from overseas distressing. Oil and gas workers were especially susceptible to the effects of the pandemic as a result of their presence in a demographic that places them at high risk of poor mental health and suicide (Feringa &Wentzel, 2020; Parker et al., 2018).

Job loss and loss of holidays

During the pandemic, casual workers were 8 times more likely to lose their jobs during the lockdown periods of 2020 and 2021 than permanent employees. During the first lockdowns in 2020, over half of job losses were those of casual workers, along with part time employees. In the lockdowns of the following year, casual workers accounted for 75% of all job losses (Stanford, 2021). P24 lost a job because they were a close contact of someone with COVID-19. The company they worked for insisted they took time off, however they were forced to use their holidays for this:

‘I lost a job, I was quite annoyed cause I lost a job because I had been close to somebody who had had COVID and I had to take time off work. They made us take our holidays, which was annoying, because I was saving them for a reason’.

Likewise, P21’s company wanted workers to use annual leave:

‘The company said no, you can't come back to work because you don't have your second vaccination. I'm like, but I'm vaccinated and I've got an exemption. As a result of that, I was forced by the company to take leave and they wanted me to take annual leave. I'm like, no, I'm not taking annual leave, so I've got them to put it in writing that they've approved personal leave. Because I've never had a day off, I've got all this personal leave, so I've still got like 600 hours left.

Loss of employment was a significant precursor to the reporting of anxiety and depression symptoms for participants in Fisher et al.’s (2020) study. Furthermore, they expressed thoughts

of being ‘*better off dead*’ (p. 458). Fear of job loss also caused anxiety during the pandemic (P14).

Uncertainty

P1 reported having ‘*feelings of frustration and nervousness regarding when the pandemic will end*’. Likewise, P28 found that any feelings of distress came from the ‘*unknown*’:

‘No one knew what to do, to be honest, to be quite honest, I don't think any organisation, not even the government, the federal government, knew what to do. So it was just fly by the seat of your pants’ ... ‘Myself and a lot of offshore people were working long rosters and doing quarantine. I was quite lucky, I had to quarantine before I went offshore. But then there's guys I worked with who quarantined after they finished work so they can go off to the Eastern states that was just like, I don't know whether the managers realised how hard that whole thing was’.

The unknown and the uncertainty felt during the pandemic (P2), of not knowing where and how it was going to end (P20, P25, P27) created concern and fears around job security:

‘I think like most people, you start to feel less comfortable in your position, you start to question your longevity in your job. I think in engineering, we start questioning, you know, what place we might have and for how long. It can be a little bit scary’ (P17)

Uncertainty around the underlying basis for restrictions increased feelings of anxiety in Australian adults (Fisher et al., 2020) and together with other factors has resulted in significant mental health reactions (Brooks et al., 2020). Other studies have linked uncertainty and fear of job loss together with quarantine and typical FIFO stressors to poorer mental health (Asare, 2021) and to a fear of COVID-19 (Duru et al., 2022). Furthermore, both COVID-19 anxiety and the inability to tolerate uncertainty negatively affect resilience, whereas resilience predicts higher tolerance levels of uncertainty.

COVID-19 vaccinations

There are additional factors that were revealed during interviews that may not have emerged from other research. For example, several participants found the approach to vaccination stressful. P21 suffered a relationship breakdown due to disagreements around the COVID-19 vaccine:

‘Vaccinations, my wife was against them and it was enough to change her and COVID brought everything to a head and we split up.’

P13 stated that the discussion at work often centred around vaccine mandates:

'So a lot of our work group discussion was around vaccine mandates and stuff like that. And there's a few people that were, I suppose, anti-vaxxers for want of a better word. And obviously you try to support your work colleagues where best as possible. And that was quite a divisive issue, the vaccine, I was still chatting with a guy today about it. And yeah, my sister's an immunologist, so getting some feedback from her around some stuff and another friend of mine's a specialist doctor, so you're trying to provide an objective view where possible, but yeah, it was a very divisive cause' (P13).

P21 booked to get a COVID vaccination, however due to a pre-existing condition, was unable to receive the vaccine. Due to organisational vaccine mandates, they required an exemption, which was granted and accepted by the company. When the second vaccination was due in accordance with mandates, the employee had to wait 12 weeks due to the type of vaccine:

'But I ended up, it was about 3 swings, nearly three months before I was allowed to come back until it cleared (virus). I had my second jab. But the worst part about it was when I got back to work, it was like, well, you should have had your vaccination, you knew better. And it's like, well, no, there was no mandates at this time. This is my boss, now, my current boss and I'm like, no, I had a medical contraindication, I wasn't allowed to get the jab. I had all the clearances. But you're telling me that... you and others are saying that I should have had my jab prior that because I knew it was coming, I said no. I didn't know it was coming. There was no mandates up until a period just before the 1st of December. And I said it's not like I planned to get shingles and I planned to not come to work, have a look at my history. And then I got back to work and everything smoothed itself out, I've got my second, I've got my third jab now. It's not like I was an anti-vax'.

Unfortunately, this had adverse effects for P21's role offshore. Shortly afterwards, there was an intermediate performance appraisal:

'I'm getting my boss now coming back, talking medical contraindication, medical issues on my performance. So now I have to coach my boss to say, hold on a minute, these are two separate issues. You can't use my performance on a medical issue. You know, it's against what we do, at least we're not supposed to do that. Medical is completely off limits when it comes to discussing private medical stuff, right?'

Direct and indirect fear and threats over possible job loss or poor performance ratings may be used by management or leaders who aim to control their workers, reflecting a pattern of bullying (Tavanti, 2011).

Coercion to relocate

During the height of the pandemic, workers were being asked to uproot and relocate across the country. There has been a general anxiety about work and the ability to get to work. P18

explained that there was an application process for a pass but concern remained around being able to get back to work.

‘They were getting paid \$300 a day to live over in Perth for 2 years. That’s every day. That’s whether you’re working or not. We’re talking obscene money. Because they didn’t want to try and find other workers that were in WA, or they couldn’t find workers. So they tried to relocate people and so yes I found that that for me was the hardest part because obviously I can’t say anything and I completely get that sort of view, but yeah that from people is the hardest bit, you know’ (P4)

Likewise, P18 had experienced a similar issue:

‘The COVID thing triggered that off and the companies have used that as an excuse to not have to pay for flights coming over anymore, any new hires and even some staff that were already on, they gave them the ultimatum, they said here’s your package, you come on over or you forfeit your job. So that’s been pushed on us. Obviously, we’re coming to the end of our term with most only got about 2 1/2 years left. They’re not gonna make people come over. So we’re in a situation. But yeah, that’s definitely happening and uprooting family and friends for work’ (P18)

P10, who is a casual worker, explained that they were reluctant to speak up if they were showing symptoms consistent with COVID-19:

‘So I didn’t really speak up about how I was feeling, if I was tired or fatigued. I was trying I guess not to let my co-workers down and I could know that from that period where we had five guys out with COVID at the same time, after they came back, they all went straight back into sort of a 12-hour day. And I could tell that affected some of them. You know, they went from doing nothing in the cabin for seven days and isolation to sort of full-time work in the sun, lifting heavy things’ (P10).

Similar concerns were reported around getting sick and showing symptoms of an illness that could be perceived as the COVID-19 virus. In other studies, this was related to a fear of being infected (Baygi et al., 2022; Fisher et al., 2020) and infecting others, particularly loved ones or family members (Asare et al., 2021). It was also difficult remaining offshore to work while being sick. In the case of a common illness that is not COVID-19, employees are still expected to work their 12 hours, without breaks (P16). Purposely choosing to hide sickness symptoms whilst still working is known as presenteeism and impacts productivity, increases the risk of accidents and errors and increases the likelihood of spreading a virus (Miraglia & Johns, 2016). On an individual level, employees are more likely to become absent in the future and to subsequently suffer worse physical and mental health (Lohaus & Habermann, 2019). They have lower levels of job satisfaction and engagement in work, while their work ability decreases and they increase their risk of emotional exhaustion (Lohaus & Habermann, 2019).

Because casual and short-term work creates financial uncertainty and job instability, presenteeism is more likely to be found in employees who perceive their work as precarious (Kim et al., 2020), however they are still at risk of wage loss (Lohaus & Habermann, 2019). Unfavourable organisational outcomes are inevitable and although presenteeism results in a higher level of productivity than absenteeism, there is still a loss in productivity. Nevertheless, fears of not being believed by supervisors, which Correia Leal et al. (2022) term ‘supervision distrust’ (p. 2), can influence work behaviour, especially when work is insecure. Covering up sickness symptoms can deplete a worker’s resources and acts as a mediator between the perception of supervision distrust and emotional fatigue (Correia Leal et al., 2022). For P11, there was disappointment in the way their company had interacted with them after they had been away from work waiting for surgery:

‘I just sort of think it kind of shows the company's true colours, really like, you know when they want you to do something because it's costing them money, they're calling you up all the time. But then as soon as that... like you know, you could be dead. They wouldn't care. Like I had workmates, they got put into isolation when we were on a ship, they caught COVID on board and put into isolation on [location] or in small cabins. But you couldn't walk around, couldn't talk to anyone, and for weeks they didn't even know when they were getting out, and they had no contact from the company at all’ (P11).

Isolation and confinement

While the Australian population as a whole were subject to restrictions limiting interstate travel, it is likely that the mental health outcomes have an uneven distribution throughout the general public as they are also dependent on specific personal and economic conditions (Fisher et al., 2020). The rules around isolation during the pandemic imposed further restrictions on some offshore workers due to their requirements for interstate travel. Similar to findings in previous studies (Asare et al., 2021), travel quarantine to and from work caused distress to offshore workers, resulting in poorer mental wellbeing. Other studies have found associations between travel quarantine and a higher risk of self-harm and suicidal ideations (Daly et al., 2021). Confinement and restrictions on movement were one of the main themes which emerged from interviews in this study, echoing findings by Brooks et al. (2020), where confinement and loss of contact with others were frequent causes of frustration and resulted in the feeling of being bored and isolated:

‘I think it was the confinement. It was that feeling that you feel that you're a little bit, you know, you're completely confined in that five weeks at work to a ship, so when you come home you don't want restrictions and I think that's what got a lot of people, was

when they got home they were restricted as well. And so it would have been double impact on marine workers and mine workers for sure, having that... locked up for two weeks in a hotel room, go to work on a limited or restricted area and then be locked up again for another two weeks. We've all got phones and we've all got, we can watch Netflix and I mean, it would have been a lot worse without technology. I'm sure it would have been but still, it's still people's time. I think we all felt like we had time stolen off us, everybody, and especially if you're working in a confined area, it was like your time off is so precious anyway because half of the year, you are confined' (P20).

As offshore workers already spend a good deal of time away from their families, providing updated information in a timely manner would have been essential in order for those in quarantine to process the situation. In particular, restriction of liberty caused detrimental effects to mental health (Brooks et al., 2020):

'Definitely, 'cause that's why I resigned from a full-time position. You know I'd been there 14-15 years whatever it was. And then I just got sick and tired of being locked up. Told what you're gonna do. Told what you're allowed to eat. Told what you're allowed to drink. The whole way it was managed, if you could call it that, I found very frustrating. And they even, even when the pandemic first broke and we actually raised it with onshore management saying, listen, because we were sailing for Singapore, said have you got anything in place or have you thought about anything around what's going to happen with this? And they laughed at us and said we're watching too much social media. And then we set off for a three-week journey and three months later we got back home and that was after being anchored up there and there was no certainty about how they could get us off or when they could get us off. They wouldn't send food out to the ship because they're worried that we're gonna run out or we're gonna get COVID off the packaging on the food' (P22).

Along with vaccine mandates, loss of liberty for the greater good during the pandemic was particularly controversial (Brooks et al., 2020) and ought to have been managed cautiously, especially as depressive symptoms in offshore workers were estimated to be present in 28.8 percent of Baygi et al.'s (2022) sample. Anxiety and stress symptoms were 24.8 percent and 24.4 percent, respectively.

Mental health training and interventions have been put on hold since the COVID 19 pandemic. Workplaces who once had programs have not yet restarted them. P7 stated that mental health programs had not restarted. Likewise, mental health was discussed more during COVID at P29's workplace but had since died down and had not been talked about much since.

In 2022, Baygi et al. called for the exploration of antecedents of the processes that underpin the mental health of offshore workers. At the time, the authors stated that there was an absence of published research on how offshore oil employees fared during the COVID-19 pandemic.

This qualitative research examines a wide variety of psychosocial stressors that are present for offshore oil and gas workers in Western Australia and includes a question that attempts to reveal the effects of government, state, and organisation-imposed restrictions during the pandemic. Participants were asked whether they could identify any positive changes or interventions since the COVID-19 pandemic had eased, such as roster changes, reorganisation of work, work security, shift arrangements, social support and mental health programs or interventions.

P19 and P23 stated that nothing had changed at their workplace. In P22's organisation, the roster returned to the usual "Norwegian", pre-Covid roster, but that was the only change of note. No major changes were reported at P20's company. There was no longer a requirement to quarantine, however employees needed to be tested before boarding. Those with COVID-19 are required to stay home, and during this time they are replaced until they recover. Although permanent workers are still paid, there was some doubt over whether casual workers still received an income during this time, resulting in a lingering anxiety about loss of income. Likewise, P13 revealed that employees with insecure work status were hesitant to speak up if they were experiencing symptoms of COVID-19:

'The self-declaration of someone being fit to work, if they are in insecure employment, some have been reluctant to advise on symptoms as they may not pick up work again for some time. Or alternatively when they do advise they have symptoms they are not paid'.

In P20's organisation, an option for mental health support was introduced a few months prior, an offer which extends to casual employees, and is available for anyone experiencing any issues *'including divorce, financial stress or personal issues.'* P2 reported that the company had not introduced any new programs to help with offshore life. There had been the introduction of mental health courses, but as far as roster changes or other mental health initiatives, there had been no changes:

'They talk about mental health but feel it's just because it's the flavour at the moment. Any real changes like high speed internet so you can video chat with family, or limit cabin sharing, that is not something they are doing. In fact, there are a couple guys that tried to take any Covid leave they had built up the company were not very cooperative. The Union was called in to help sort it out'

P13 perceived the most recent company campaign, a *'festive period health and safety campaign across all issues health and safety'* to be for the most part a symbolic effort, but felt that it was better than nothing and got people thinking.

'Unfortunately, until there is a systematic or systemic change of tack or trend when safety matters are raised I don't think people will take safety campaigns instigated by the employers seriously given when people raise matters, the matters are rigorously defended against'.

P2 remained very sceptical of company motives with mental health or improving life offshore, only implementing something when it *'makes them appear good corporate citizens. Any suggestions from employees seems to be met with "good idea we will look at it" and is never heard of again'*. P2 also revealed that organisations are still reactionary when it comes to mental health, with employees being given a number to call if they are experiencing poor mental health, with little or no discussion on how to prevent issues in the first place.

'I don't know the details but last swing a crew member had to be repatriated home "as he wasn't coping" (according to offshore management), and the attitude of management was like he shouldn't of come offshore in the first place. Seemed like very little regard for the individual and management seemed happy to let that sentiment be known.'

P9 had returned offshore to be informed that five colleagues from the vessel had attended a mental health course presented by the company and St. John. One co-worker had presented on the subject at the three weekly safety meetings to all staff on board. There were further positive changes noted by P9 since returning to work offshore:

'Since I have returned on board, I have noticed there are some flyers/pamphlets on various types of things that may worry/concern people leading to stress, distributed in the mess room. Further to that, a contractor spoke at the daily morning meeting about his mental health struggles & some of the coping mechanisms he has learnt through training. He has offered for anyone to approach him in confidence if they would like some advice/tips.'

P13 reported that since Western Australia's borders reopened, there had not been any renewed focus on mental health in the form of interventions or programs because *'that costs money'*. Reluctance to organisational expenditure also extended to other areas of the workplace:

'When it comes to changing equipment sometimes that if it's a cost involved to something that sometimes brings it into question it gets a Yes, we're looking at that. Yes, we're looking at that. Then the ship goes off the coastline. I wouldn't say it was

something that was gonna create a death instantly, anything like that would be addressed immediately but somewhere where we think we could make an improvement is often pushed onto the back burner a bit' (P20).

As stated by P20, the biggest changes have been ways to manage COVID-19 in the workplace in terms of isolation requirements, for example whether that employee stays on board or flies home. At the time of enquiring, mask wearing, good hygiene and the reporting of symptoms was still in use. Companies were still focused on *'how to manage, prevent and detect COVID prior to joining a vessel'*. Although a lot of the COVID-19 management had been in line with World Health Organisation and Commonwealth, State or Territory health department advice, there had been no changes to the current roster, however a potential change due to the outcomes of bargaining may be due within 12-18 months. Responses to how the workplace culture affected help-seeking behaviours identified the tendency to just 'get on with it' and it appeared to still be the case as stated by P13:

'I think we're still in that masculine/paternal culture of the workplace of 'just getting on with it' with the occasional person referring to woke measures. An oxymoron of a trigger itself'.

As previously identified, during the COVID-19 pandemic companies were offering large sums of money to attract or relocate workers across state borders. P13 revealed the changes which occurred since then:

'As companies were rather desperate to get people across borders, they were bending over to keep people or attract. Now borders are open it's been a return to hostilities with quite a numerous amount of disputes on the industrial relations front. To add fuel to the fire we commenced enterprise bargaining negotiations 5+ months ago across the industry which has seen a return to the battlefield. Further, unfortunately some companies are not providing secure work in order to remove their long service leave liabilities due to casual employees recently having been recognised by the WAIRC to have their employment history recognised'.

5.3.18 Exit statement

The interview exit statement allowed participants to discuss any other information that they thought was relevant to the research topic. Participants were asked as the last interview question "Is there anything else that you would like to tell me about psychosocial stressors or mental health hazards, what is done well to manage these hazards and if there are opportunities for improvement in managing employee mental health in the offshore oil and gas industry?"

Lack of appreciation and promotional opportunities

A good work culture is one where employees feel like they are valued (P4) and appreciated (P12, P17) and it is important to workers that they can feel like *'I'm doing something good'* (P12), to have more of a relationship with their bosses and to be told that they are appreciated:

'Well, just I think an overall appreciation of what we do and a more kind of welcoming positive, you know, leadership and HR like office staff or who the bosses or whatever giving you a bit more of a pat on the back' (P12)

In comparison to their permanent colleagues, casual workers can feel less appreciated and are likely to be replaced easily by their organisation and so are not as likely to contribute to their team (Zeytinoglu et al., 2004). Being appreciated in the workplace impacts employee health and wellbeing (van Vegchel et al., 2002). Stocker et al. (2019) studied the moderating effects of supervisor appreciation on employee wellbeing when dealing with work interruptions. When work is interrupted, either by external factors or other people, the discontinuity in work is generally linked to strain (Baethge & Rigotti, 2013), affecting attention to task, and further draining resources when having to reorient attention back to the task. Frequent interruptions at work over prolonged periods may result in fatigue and jeopardise goals (Stocker et al., 2019), yet appreciation from managers was found to moderate the effects of work interruptions on job satisfaction, job-associated depressive mood, self-efficacy, and sleep issues. This is just one area where displays of appreciation acts as a moderating resource protecting against organisational stressors. Employee wellbeing can affect both actual and perceived working conditions (Stocker et al., 2019), for example satisfied individuals perceive the same circumstances more optimistically. Appreciation and a sense of being valued significantly contribute to employee engagement, with 43.9% of McCarthy et al.'s (2011) sample stating that gratitude, recognition or being valued were the most beneficial in ascertaining maximum employee performance.

'I think positive feedback is a big thing. I think a lot of employees these days in the current socio and economic climate in Australia are very grateful to receive positive feedback for the work they do, so I think that goes a long way, a long, long way' (P17)

Research has shown that employees who feel valued and supported by their organisation perform better (Eisenberger et al., 2001), are more likely to seek help (Gardner et al., 2018)

and experience better job satisfaction (Wyatt et al., 2017). Negative feedback from supervisors, particularly when employees have a high workload, can result in a lack of fulfilment or achievement. Consequently, work engagement decreases and employees are less likely to work to a high standard, develop fresh ideas or generate new approaches to problem solving.

'People... they try and erode, they try and take, take take as much as they can because it's all about their bloody profits. But, you know, if you don't have a good, happy work culture, then it's not gonna... it works against them' (P12)

Limited opportunities for career development can demotivate and frustrate employees, possibly impacting interpersonal relationships at work or at home negatively. Perceptions of poor recompense for training, ability and labour result in increased demands on the organisation in the form of low morale, emotional distress and poor tolerance to additional stressors (Sutherland & Cooper, 1996). Promotional opportunities are significantly related to employee performance (Tessema & Soeters, 2006) and a lack of opportunities for promotion significantly predicts occupational stress (Mosadeghrad et al., 2011). In fact, an absence of possibilities for promotion has more impact on employee turnover than pay or workload (Shields & Ward, 2001). Brown et al. (2014) established opportunities for promotion and development as being potentially significant influences on employee turnover. The chance to upskill can be difficult if there is not an organisational drive to do so (P13) and improvements are needed in this area because *'there's just other jobs out there that are offering better opportunities for personal growth'* (P4). Providing training for employees is associated with higher levels of satisfaction in an employee's current work environment and with future career possibilities (Dickey et al., 2011).

Unfair work practices for casual employees

Precarious employment arrangements mean that workers feel insecure in their work and, with no possibility of permanency in the foreseeable future, are likely to live in a state of constant worry that they may lose their job at any time (Zeytinoglu et al., 2004). Job status and pay insecurities can lead to offshore workers tolerating poor working conditions, resulting in costs for both organisations and employees (Sutherland & Cooper, 1996). P20 was no longer classed as employed when the offshore swing had finished and had returned home, meaning that they were unable to vote on decisions made in meetings unless physically offshore on the facility:

'A lot of the voting sometimes that goes on when it comes to EBA's and things, I'm a casual, not a permanent person and if you're not at work... when we sign off at the end of five weeks, we get paid out so technically we're not working for the company

anymore, which means we can't vote and they very often will hold those votes when casuals are not employed which is really, really sneaky of them and makes me really angry actually because I've been working for the same company for 12 years... I've missed like I think in that 12 years maybe 7 shifts. So if you add that up 7, 5... 35 weeks work in 12 years, but I'm not classified as somebody that can vote about my job. It's so annoying. It's really... it's tactics. It's all to do with tactics of big company yeah?' (P20).

Permanent work status is associated with an increase in safety satisfaction, job security and income. As conveyed by P12, permanency would result in job security and decreased concern about job status:

'I would love to be permanent because that would take a weight off my shoulders, and I think that's just something that's always been hard with casual people'.

Drug Policies

Drug and alcohol use showed a significant association with mental health and wellbeing for Parker et al.'s (2018) FIFO participants in comparison to the benchmark group in that study, suggesting that the use of drugs is a coping strategy for employees. Parker et al. (2018) found that 28.7% of participants had used drugs in the preceding twelve months, more than double that of the benchmark group (12.3%). According to Attridge (2019), there are greater innate risks and stressors for those with mental health problems in high stress industries and as a result, the risk of using drugs and alcohol as a coping mechanism increases. P12 explained:

'When I first started going to sea, I was drinking so much on my leaves and after I'd had a big weekend, I'd lock myself away in my house and I'd turn my phone on airplane mode and I think that with those years of doing that started eating away at my brain like my normal way of... I never even, like I said, I didn't know what anxiety was. I'm a very bubbly people person. I never, never had depression. I never had anxiety. I didn't even know what paranoia was, you know. And I think when I started earning good money, started spending more money and partying and doing all that. I think that added to the way my brain thinks and I started getting these kind of thoughts of like ohh like lock me away and that was probably the worst thing I could have done. You know it's like, it's just something I never, never did before and then people got used to knowing when I'd be down and depressed, because I'd have my phone off and I had friends coming around and make sure that I'm OK and stuff like that'.

As offshore employees cannot drink alcohol on the facility, it is common for workers to drink a lot during onshore leave (P29). There has been an increased focus on drug and alcohol testing since the COVID-19 pandemic. P6 explained that as COVID-19 testing increased, so too did the positive cases of drug and alcohol incidences, further evidence that this may be a type of coping mechanism:

'So at our place now, and this is just happening, the last swing that I've been out there, there's gonna be an increased emphasis on drug and alcohol testing, which is urine. You know, you go through, it starts at the top with all the drugs that are really horrible, you know, ice and heroin and all that. They're one to three days out of your system. And then poor old marijuana down the bottom comes in at you know, 7 to 30 days' ... 'When you turn up to work, which is what we're all about, when you drive a car they do that, but there's a feeling and it's a really strong feeling and it created a big discussion on board and it really draws back to mental health because people feel like they're being criminalised, maybe having a joint at the beginning of the leave... sacks them. Whereas somebody else that's an alcoholic or has been smoking ice three days up to joining, they're off the hook with this urine test, whereas saliva testing is a lot more fair in that regard'.

FIFO workers mostly used cannabis in Parker et al.'s (2018) study (13%), again over double that of the benchmark group (5.4%). P6 continued:

'I think the way that drug testing's done plays a big part, because now everybody out there at work's talking about it, you know. And one of the OIMs is very, very good, he said that the urine testing of marijuana leads to higher incidences of the harder stuff at the top because people'll go for the ice and they'll go for the speed, because that's out of their system, so they can party on and do whatever they do and get away from the marijuana and yeah, it's created a lot of discussion, a lot of, you know, a lot of anguish and that. And I mean, you know, I'll work with it. But yeah what I mean when I say work I with it, my system works with it come test time but it's definitely having an impact, that people that are maybe casual users of marijuana are the ones that are gonna get like almost identified in this new testing regime under urine, and the medic did say most bigger companies now are moving towards saliva for the pure fact that, someone had a joint two weeks ago, why they're losing their job, you know?' (P6)

Similarly, Parker et al. (2018) found that participants in their study used drugs that were unlikely to be picked up by testing. As in their study of FIFO workers, offshore workers turned to other drugs such as methamphetamine ('meth'):

'I've had to take people off because of excessive drug use in their time off, and they are actually coming down when they get there. And one guy? Yeah, he was pretty bad. Pretty bad. They nicknamed him Crystal Mick. That sort of would have been a giveaway, right? So I mean, these guys are turning to a list of substances, not as much anymore. So they would, because we did the drug, now alcohol testing... but in the early days they were turning to it as a coping mechanism, right, so now we've got better education' (P21).

Education and training which aims to both effectively manage the use of alcohol and drugs and to promote alternative choices helps individuals to understand the factors associated with mental health (Parker et al., 2018).

Safety and working conditions

Attempts to improve work conditions often require employees to bargain for better work conditions through an Enterprise Bargaining Agreement (EBA):

‘And yeah, just kind of this next EBA, I hope we get things that we're asking for, like good Wi-Fi and just kind of comforts on the boat that let you live your life out there. That's not so bad, you know, that's important. I think 4 week swings, that would be amazing to get them and just keep the awareness up about and I think they're doing a pretty good job for that about mental health and just acknowledge that it is... because I think sometimes they think we're just living this glorious life and we're getting paid heaps of money. And it's like, well, hang on., I work. I'm away half of my life, you know, like no one would do that if the money wasn't good, there's no way you'd do it. But also just because the money's good, it's still, it's a mental game’ (P12).

Workers who are distracted are more likely to be involved in accidents, as hazard identification is reduced (Namian, 2018), particularly when cognitive resources are diverted to focus on productivity (Hinze, 1997, cited in Namian, 2018). Several participants perceived the main focus to be on production (P22, P26, P27) and to be in a state of production (P22), particularly on drilling facilities (P6), and be expected to work overtime in periods of high production (P29). Furthermore, stress often results in poor alertness levels and decreased concentration when cognitive resources are strained, causing attention to be narrowed and thus peripheral cues to be missed (Sneddon et al., 2013). Although safety in the work environment is inherently an organisational responsibility, individuals at each and every level also have an obligation to adhere to safety protocols (Cairns et al., 2008; Fleming et al., 1996). Strain often arises from work-family conflict (Parkes, 1998; Sutherland & Cooper, 1986; Sutherland & Cooper, 1996; Sutherland & Flin, 1989) and concerns or anxiety about family which interfere with focus and attention at work are negatively associated with safety compliance (Johnson et al., 2019).

‘You know financially well it does have an impact when people haven't got their mind on their job and having accidents and that probably winds down to safety. If someone's, and you can tell like you've been at sea long enough, you see guys going through marriage breakups. They're not with us, their head's in another place. That is definitely a massive safety issue to it and I've been guilty of it too, and I've had stuff on my mind, you're not thinking about the job. So it's deeper than just mental health and people's well-being. It actually affects, well, the operation, which is a financial thing, least of our worries, but it has a mega impact on health and safety. You know, if someone's doing a critical task and they're worried about, you know, their wife playing up or they've got depression, or they're worried about something that really isn't something to worry about, then that's where I see the big risk of it is that it can cause injury to others’ (P6).

'You gotta keep your mind right and you gotta, you know, yeah, that's the thing, you're not living a life that everyone else is living. Yeah, you're here and you're gone. You're here and you're gone. You're here and you're gone. You can't have a dog. You can't have a cat. You can't, you know, it's hard on your relationship. There's so many things that they don't see, so that needs to be kind of acknowledged that it's not just an easy job. It's not, it can be a difficult lifestyle if your mental game's not there' (P12).

Safety was identified as something that was done well by P20:

'Safety on board is done very well. Safety is done, it's excellent. I mean, I don't know every single area of every ship. We always find hazards because every ship's different. We're constantly finding new hazards, but they're addressed immediately' (P20).

Changes in workplace culture

Roughly 76% of deaths by suicide in Australia are men (Australian Bureau of Statistics, 2018). Being able to identify individuals who are experiencing poor mental health or acute psychological distress so that treatment can be given is a fundamental component in preventing suicide (WHO, 2019). However, hope for future change was provided by P14:

'Days are gone where you have to be the tough guy working offshore, people need to speak up and not get in trouble if they do'.

Likewise, P13 considered the culture of male-dominated environments to be slowly changing:

'I think probably what's worked in the last couple of years is maybe a slight change in culture for people to go OK, if there's generally people that are suffering and stressful in a mental health state, you know we ring them up and we check in on them. We had a couple of guys [inaudible] suicide, so you're trying to, from an employee's perspective, go and check in on your workmates and you know, encourage them to use a third party or just go and see a psychologist or whatever. I think it's about changing that traditional culture'.

Typical male-dominated working environments revere conventionally masculine traits such as self-confidence, assertiveness, restraint and risk-taking and this persona is particularly fitting in high-risk work environments, where physical threats are common (Champions of Change Coalition, 2020; Ely & Meyerson, 2010). Yet changing expectations of male behaviours in the context of male-dominated organisational settings may be more attainable than expected. Ely and Meyerson (2010) reported the phenomenon of workers on two offshore oil facilities changing their behaviour within a typical male-dominated environment after the implementation of a safety initiative. Participation in the program unexpectedly resulted in a kind of liberation from masculine behaviour, termed the 'undoing of gender' by Ely and

Meyerson (2010, p. 3). Male workers became open to acknowledging their mistakes and limitations and to considering other people's feelings.

The most common form of everyday discrimination towards women was found to be jokes or comments which use gender-specific derogatory terms (Australian Human Rights Commission, 2018; Champions of Change Coalition, 2020). Repeated unwanted invites for a relationship or to attend social events is also classed as sexual harassment (Champions of Change Coalition, 2020). Recognising that there is a need to focus more on mental wellbeing, younger workers showed that they were more open to discussion on the subject and more willing to address poor mental health. This view was echoed even by participants over 50 years of age. This is an encouraging finding of this study because research has generally found younger males to be fearful of judgement from others in regard to poor mental health. Concerns about being thought of as weak or unmasculine deter younger males from disclosing psychological distress, leaving them at increased risk of suicide (Cleary, 2005; Ellis et al., 2013; McKenzie et al., 2013).

Younger mine workers in one study had a preference for online sources of support as opposed to face to face, which was preferred by older workers (Tynan et al., 2018). Online sources of support provide confidentiality to those who struggle with seeking help because of gendered expectations of males. Furthermore, young males use technology not only for entertainment and social connection but as a source of support. The majority of participants in Ellis et al.'s (2013) study with Australian males aged 16-24 years revealed that they had satisfactory experiences online when they had sought help for an issue. The Mates in Mining intervention has shown promising effects on workplace attitudes towards mental health as well as positive results in the context of family support after disclosure of mental illness (Sayers et al., 2019). According to Champions of Change Coalition (2020), generational change in the workplace does not appear to be able to positively impact discriminatory behaviours, however, Ely and Meyerson's (2010) study shows how the right type of intervention can improve work environments in the unlikeliest of ways.

Fear of job loss

Stress from concern about job loss has been directly linked to numerous significant health issues such as hair loss, inflammatory conditions, muscular complaints, and emotional issues (Sutherland & Cooper, 1996). Being part of a union frequently causes anxiety for workers

regarding the negative impacts that this may have on their reputation, for example, being labelled a troublemaker via a ‘blacklist’ system. It is thought that there is a database for employers to investigate the work history of an employee:

‘Basically, by and large, if you were on the database, they had the history if you’d been a naughty person. I mean, some of the employers have their own database itself. But yeah, there was a broader industry-wide database. Obviously if you spoke up and then you’d end up on it. And then you went to another project through another employer and you, because you don’t know if your name’s on it or not, and then all of a sudden... but I spoke to one guy and his name was on it and you can pay to get it removed off the database but then are you just giving someone money to remove it?’ (P13).

Concerns of being ‘blacklisted’ was also found in a Western Mine Alliance (2021) survey of FIFO women, where employees reporting sexual harassment incidents stated that they would be moved on from their position in some way or prevented from furthering their careers.

5.4 Main themes of the study

Inadequate accommodation and internet

On many facilities, space to live and work is limited. Confined spaces were a frequently mentioned feature of offshore work, whether that was accommodation, workspaces or personal areas such as mess rooms or gyms. Crowding heightens the effects of other sources of stress and has been linked to aggressive behaviour and a lack of tolerance for both present and future team members (Parkes, 2011). Because the environment can resemble institutionalised living (Bailey-Kruger, 2012; Collinson, 1998; Parker et al., 2018), it is important to make personal spaces as individual and comfortable as possible as comfortable sleeping areas help combat fatigue, a factor which has multiple negative effects on safety outcomes (Landon et al., 2019). As FIFO workers use social withdrawal as a coping mechanism (Bailey-Kruger, 2012), providing respite from auditory and visual overstimulation by establishing quiet areas may benefit workers. Lack of privacy during personal phone calls (P29) is a direct consequence of the absence of private spaces offshore. Improving accommodation and internet facilities can also help in improving job satisfaction and in the retention of employees (Barclay et al., 2014).

Fear of speaking up

Throughout the study, it became clear that a fear of speaking up pervades across most aspects of work. For casual workers in particular, raising any issues regarding work factors tended to result in a negative series of events for many of the participants. Consequences of raising

concerns about work-related issues were more serious for casual workers, but permanent workers were also impacted negatively. Casual workers suffered a variety of drawbacks solely due to their status of being employed on a casual hire basis. For P21, a permanent worker, feeling dismissed at meetings, being talked over, demotion and exclusion from meetings and trips was the direct result of raising a safety-related work issue.

Work relationships can be damaged, and in some cases may be irreparable. Where there are imbalances of power, exclusion and demotion are very real possible outcomes for the employee and in the focus group, participants reported not being called back to work once they had raised a work issue as an example. This is similar to Underhill and Quinlan's (2011) findings that as soon as Health and Safety Representatives identified an issue, they were moved out, just as the shop stewards were in McCabe's (2007) case study. Concerns were raised by ACTU in 2018 that health and safety representatives who actively spoke up on issues were being removed from the roster or facility. In fact, speaking up about an issue in the industry is widely known as '*booking a window seat on the next flight out of here*' (p. 16). Further threats to the recruitment and retention of health and safety representatives (HSRs) are insecure work and a lack of support (ACTU, 2018).

Concerns raised about safety, or practices used by employers, brings with it the risk of blacklisting, loss of shifts or termination of employment and casual workers are the most at risk when raising issues (Australian Workers Union, 2021). One participant in McCabe's (2007) study argued that the dismissals strengthened the individualisation process, undermined the union, and made workers feel victimised. There is a concern that employees have doubts about speaking up, fearing future reprisals. As Sampson et al. (2019) state, in an industry where employees work in a high-risk environment, loss of job autonomy due to fears that disagreements could cause them difficulties further down the line is particularly worrying.

Micromanaging

Micromanaging is generally a negative practice with detrimental consequences on employees and organisations. Its links with poor morale, reduced productivity and higher levels of turnover are well established (Collins & Collins, 2002; Irani-Williams, 2021). Furthermore, micromanaging reveals a lack of trust in employees (Tavanti, 2011) and in return a loss of trust in supervisors (Irani-Williams, 2021). P20 felt that employees were micromanaged even when they held qualifications and did the job to the best of their intent. Working as a cook, P20 stated

that diets were micromanaged, and this made the job much more difficult. P12 and P6 identified that management and supervisors over-regulated employees, with P6 associating this with an intimidatory management style. There is likely to be loss of creativity in organisations where employees are micromanaged, particularly if the flow of information to employees is perceived as unsatisfactory (De Clercq & Pereira, 2021). In summary, micromanagement can be thought of as an example of poor leadership or management style (Irani-Williams, 2021; P28).

Being away from home and work-family interference

It is well established in published literature that working offshore means long periods away from home and family. The shortest roster was two weeks and the longest was up to six weeks away from home. Participants felt that missing out on important or special events was one of the major drawbacks of offshore work (P5, P15, P13, P12 and P21) and being unable to respond to family emergencies (P21, P25). Unresolved issues when employees leave home to return to work were an often-cited drawback of working offshore (P1, P8, P13), and there were high rates of divorce in P8's department. Strain can manifest where there is conflict at the family-work interface (Parkes, 1998; Sutherland & Cooper, 1986; Sutherland & Cooper, 1996; Sutherland & Flin, 1989), affecting attention levels during tasks and safety compliance (Johnson et al., 2019). P13 had personally witnessed a serious near-miss accident due to poor work performance caused by a colleague being in the wrong frame of mind. The effects of family issues are worsened by the isolation that offshore workers deal with while they are out on the facility or vessel, and the inability to communicate properly with family members, particularly children (P15) due to poor internet services (P2-P4, P6, P7, P10, P11, P17, P18). It is also difficult to transition back into home life (P8); workers often feel that they have two separate lives to live (Parkes et al., 2015; P28).

Casualisation

Temporary or casual workers have a significant association with high levels of occupational stress (Carmona-Barrientos et al., 2020) and a major finding of this study was the negative impact of casualisation on offshore work. The 2021 amendments to the Fair Work Act (2009) intended to establish employer commitment to offering casual workers conversion to permanent work status, however, it is unlikely that this will result in a significant decrease in the rate of casual employment (Stanford, 2021). There are preconditions that employees must fulfill before offering conversion, including working a pattern of stable shifts for 6 months prior and working for the current employer for at least 12 months (Fair Work Ombudsman,

2023; Stanford, 2021), which according to Gilfillan (2020), disqualified 40.9% of casual employees in Australia. In mining, 65.5% of casual employees had been with their organisation for less than 12 months. The employment duration condition is often utilised by companies to deny workers permanency and was a common issue identified by participants in this study. Furthermore, the employer may still reject a request for casual conversion on 'reasonable grounds' (Stanford, 2021, p.7). P12 had been refused permanency several days before the interview.

Bullying and harassment from higher up

The majority of bullying incidents came from management level or from sources where there are unequal power relations. The events experienced by P20 and P29 can be classed as gendered harassment, as they occurred between co-workers who should have similar power dynamics, but do not. In other research, supervisors and management were identified as being the most likely perpetrators of bullying for FIFO workers, and 40.54% of Parker et al.'s (2018) sample stated that bullying came from these sources. As a strategy to tackle the patterns of masculinity within the workplace, the authors suggest supportive practices which oppose bullying. This is particularly important as harassment affects the mental and physical wellbeing of employees, as well as their commitment to the organisation and their intentions to remain (Bowling & Beehr, 2006).

Gendered work environment and subsequent harassment

Women frequently feel discriminated against by their male supervisors and blocked from networking opportunities to progress their career, a view held by all participants in Bailey-Kruger's (2012) study on female FIFO workers. From the three female participants interviewed in this study, two indicated that they were impacted negatively by the male-dominated work environment. P20 dealt with harassment from a male colleague and P29 had experienced sexual harassment in the form of being pestered for a relationship. The negative impacts of this type of organisational climate, often experienced as harassment, discrimination, and sex-role stereotyping, increase symptoms of stress for women (Theobald, 2002). In the Australian Human Rights Commission report (2020), the mining industry was one of the top five worst industries for reported sexual harassment, where 74% of women employees stated that they had experienced sexual harassment in the preceding five years. Murphy et al.'s (2021) research into female oil and gas workers' experiences in the industry identified a pervasiveness of sexual

harassment. It must also be kept in mind that one participant chose not to go ahead with the interview for this study for fear of being identified after speaking up about the issue.

Unions are highly valued

Unions remain important to workers and membership is beneficial to job satisfaction and employee wellbeing (Blanchflower & Bryson, 2020):

'I think a big part of the workplace we are in is that we're heavily unionised and, you know, the trade union movements, you know, like 'em or love 'em, but they're very progressive in that sphere. And I've always been part of one and we always look after our own and we always look after people, you know, which is the ultimate tenet of a trade union is to look after the thick and the sick. And we do, you know, if someone's falling down, well we pick 'em up and make sure we all go forward together' (P6)

The positive relationship between union membership and job satisfaction is well established. Blanchflower and Bryson (2020) provide further encouraging results that link union membership with life satisfaction, higher levels of happiness and lower levels of stress, worry, depression, sadness, and loneliness. The authors also reported positive associations with trust of others and institutions such as police and political parties and figures.

While unions provide workers with higher levels of certainty regarding employment status (Zeytinoglu et al., 2004), unfortunately union support is hampered by agency or casual labour hire, ultimately leading to anonymity of employees due to a high turnover of workers, where relationships cannot be nurtured. Likewise, becoming an occupational health and safety representative appears to threaten employment (Underhill & Quinlan, 2011). Managing workplace health and safety with the involvement of workers, in particular through unions and health and safety representatives, is crucial if organisations are to achieve positive outcomes. Union involvement in workplace health and safety systems is emphasised by the International Labour Organisation (2004), who advocate for the improvement of working conditions and a safer and healthier workplace through enhancing collective voices. Robinson and Smallman (2013) found that union presence in the management of workplace health and safety was linked to a reduction in injuries. In contrast, higher levels of injuries were found where union representation was lacking, even though unions may assist in the reporting process for workplace injuries. Union density (the number of employees in a workplace who are part of a trade union) is a significant determinant of employee wellbeing and productivity, increasing worker protection and working conditions (Dollard & Neser, 2013).

Environmental stressors such as heat are well-managed

The findings relating to the management of environmental factors such as heat and humidity indicate that organisations are managing these stressors well. Several participants stated that hydration was a constant focus for organisations and employees offshore. Although some workers struggle to keep themselves hydrated (P25), there are systems in place to ensure that hydration is maintained (P26), particularly in the north of Western Australia (P13). Each morning workers are encouraged to drink water (P16) and take regular breaks (P22).

5.5 Revisions to the model

From the interview results analysis, the model was amended to include hazards identified by research participants. Exposure to chemicals was removed from the model as this was not mentioned by respondents. While poor air quality was not an issue identified by participants, inadequate air conditioning in cabins was reported as resulting in over-heated and uncomfortable sleeping conditions, so poor air quality was removed and inadequate air conditioning was included. Due to participants alluding to the constant smell of petroleum, unpleasant odours was added to Environmental hazards. Work organisation factors which affect mental health included long hours of work, however work design and lack of job variety were not reported so were removed. In Management, poor management style was added to the leadership factors. Reactive responses to poor mental health, productivity expectations, casual work status, blacklisting, drug testing and pressure to extend rosters (particularly during COVID) were other stressors revealed through interviews and added to the model. Inadequate training was found to be a stressor when workers were hired who did not have an appropriate level of training and so this was amended to inadequate training. Safety culture and staff turnover were not described by the research participants as stressors so were not included in the updated model. Lack of confidentiality due to breaches of personal disclosures, lack of recognition or reward for hard work, coercion by management and organisations to extend hours and rosters, lack of opportunities and promotion and unwillingness to disclose illnesses were added to the factor of Management.

No privacy/solitude, poor internet, no social events or entertainment, inadequate accommodation and working in a high-pressure environment were identified by participants as being situational factors which caused psychological stress. Travel for employees also acted as a stressor, particularly helicopter travel and travel time to and from the facility. All

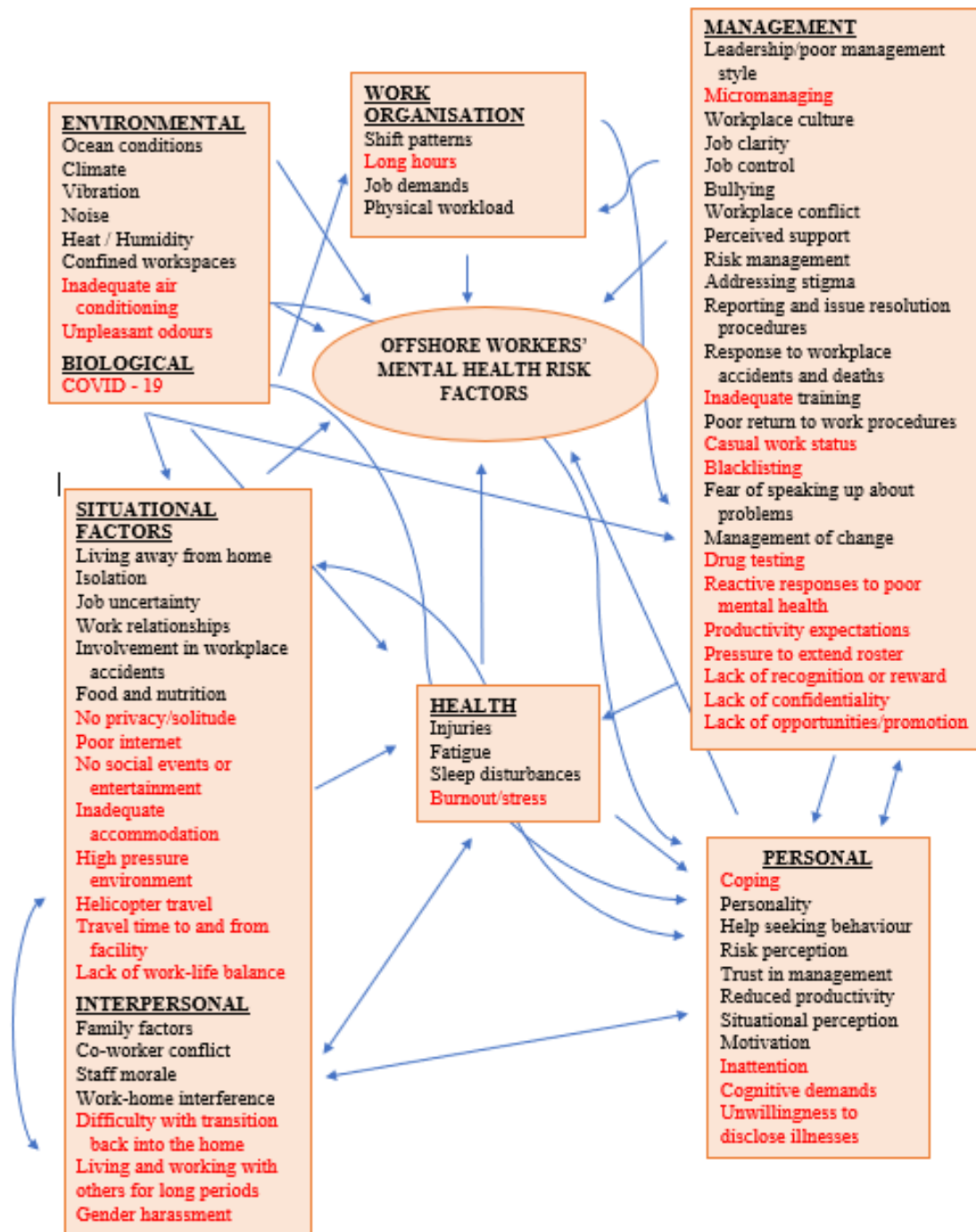
interpersonal factors identified in the review of literature were established as stressors in this study. Transitioning back into home and family life was added to the model, as well as living and working with others for long periods and gender harassment. Personal factors which were not found in the study were job satisfaction, job-person fit, past experience and cultural differences. Added factors were inattention at work and cognitive demands. International differences was removed as this was not described as a stressor by any of the research participants. In Health, motion sickness and pain were removed as they were not mentioned by any of the research participants as being mental health stressors, perhaps due to different types or age of vessel or facility studied in the published literature. Burnout and stress were additional factors found to affect the mental health of offshore workers.

The updated model is included as the following figure 5.1, with the new knowledge generated through this research included in red.

5.6 Revised model

Figure 5.1

Identified mental health hazards for offshore oil and gas industry workers.



5.6.1 Environmental

For environmental concerns, all factors in the model were relevant in some way. Climate, along with heat and humidity, was a significant factor for employees due to the location of their work in Western Australia. All participants were employed along the northwest Australian coastline, a known cyclone-prone area (Bureau of Meteorology, 2023). Ocean conditions were mentioned in terms of isolation, where the feeling of being ‘in the middle of nowhere’ added to stress, particularly in an emergency situation and in the cyclone season. Vibration, noise and confined workspaces were unpleasant factors for several participants and one interviewee mentioned the smell of petroleum that permeated everything. Poor air quality remains part of the environmental factors in the model because the air conditioning issues mentioned would undoubtedly cause discomfort. Furthermore, cabins do not receive fresh air so the room would be oppressive and stifling.

5.6.2 Chemical exposure

Exposure to chemicals was not identified as a psychosocial stressor in the interviews with offshore workers. Both toxic vapours and caustic substances did not feature in participants’ answers. Perhaps this is due to the strict safety and personal protection requirements offshore. For this reason, chemical exposure was removed from the model.

5.6.3 Biological

While several participants felt that COVID-19 had little or no impact on them, the majority of interviewees had experienced some level of stress and disruption to their everyday working lives. The pandemic created significant fears around catching and passing on the virus, as well as a general anxiety around the ability to work and to get work. This was exacerbated by border closures, particularly for workers from the eastern states, who also felt concern for families left alone for long periods. Furthermore, travel, health and vaccine mandates were divisive issues, affecting work and personal relationships. While some interviewees felt that their organisation did the best they could under the circumstances, the effects of the pandemic are viewed as being badly managed by other employees’ companies, revealing poor management styles and practices such as micromanagement. There was coercion to relocate to Western Australia by organisations, sometimes at a cost to the employee. Hours and rosters were extended and uncertainty increased. Nevertheless, some workers were forced to use their holidays and time was felt to be ‘stolen’. Others resigned or lost their jobs. Some respondents pointed to positive

effects of the pandemic, such as increased awareness of mental health issues, a renewed outlook on life and increased financial and practical support from employers.

5.6.4 *Work organisation*

Shift patterns, particularly split shifts, night shifts and shift changes are significant psychosocial stressors for offshore workers. Erratic shifts, where an employee may work two different shift types consecutively, and ‘short changes’, where crews will do shorter shifts for a day or two to swap over to the opposite shift i.e. swapping from 12am – 12pm to 12pm – 12 am, are also detrimental to sleep quality. Long hours were part of all participants’ working experience offshore, with a standard 12-hour shift every day. While the majority of participants’ rosters were balanced to equal time at work and at home, some employees stated that they were requested to stay on the facility, particularly during the COVID-19 pandemic. Additionally, employees, particularly those with casual work status, could be pressured into starting their swing earlier, meaning that their work-home balance was negatively impacted. Job demands and physical workload are particularly high when production levels are high. Burnout and stress affected health. Burnout, in a broader context to fatigue, was identified by its multiple symptoms of lack of motivation, tiredness, feelings of laziness and mental fatigue. No participants mentioned work design and lack of job variety and so these were removed from the updated model.

5.6.5 *Work management*

The Work Management heading came to incorporate factors that extended beyond the domain of work and so was amended to Management. Leadership, workplace culture, bullying, workplace conflict, perceived support, adequate training, return to work procedures, management change and addressing stigma were all topics discussed by interviewees. Risk management was alluded to in the sense that it was performed to a high standard, however reporting and issue resolution procedures as well as response to workplace accidents and deaths were a significant psychosocial stressor for some participants. Blacklisting of employees and methods of drug testing were added to this category. Staff turnover was not mentioned, however, because a high proportion of offshore personnel are casual workers, it is possible that staff turnover could be high. Therefore, this was removed and replaced with casual work status. Job clarity and control were identified as stressors during the focus group discussion.

5.6.6 Situational factors

Living away from home and family was a major stressor for offshore oil and gas workers in this study. There was a negative relationship between living away from home and isolation, where issues at home worsened both absence from family and isolation. Job uncertainty was identified as causing stress and anxiety, which undoubtedly affects both personal and work relationships. Poor work relationships were identified as causing emotional distress and raising stress levels and this can contribute towards involvement in accidents and injuries. Food and nutrition was mentioned regularly throughout the study, with employees wishing for more choice, better quality of food and more control over their diet. International differences were not mentioned by any participants and so was left out of the results model.

5.6.7 Interpersonal

Family factors were identified as a considerable concern for offshore workers, particularly on special occasions and events, where it was felt that respondents were missing out on important parts of their family lives. Those with children expressed a feeling of powerlessness in times of emergencies. Having unresolved issues relating to the family was felt to leave employees at risk of stress while offshore. Furthermore, issues with families worsen the effects of both social and geographical isolation.

Although some respondents referred to interpersonal conflict between colleagues, it was generally reported that they can depend on each other when offshore, seeing themselves as a tight-knit group who look out for each other. Staff morale was significantly related to food quality and variety and poor-quality food or insufficient options for meals significantly impacted employee morale. Work-home interference was particularly difficult for those with families and children and was indirectly linked to poor adherence to safety behaviours. The transition back into home life was also difficult for both offshore workers and their partners. Additionally, employees experience low mood and anxiety in the lead-up to the return offshore.

5.6.8 Personal

Considering that coping styles were not discussed in terms of the way people cope, but rather were addressed with regard to whether individuals either were able to cope or could not cope, the word *styles* was removed. Personality was a significant factor in affecting the mental health of offshore workers for both co-workers and managers. Help seeking had improved since the

COVID-19 pandemic, where more people seem to be willing to speak up about their mental health. Situational perception and risk perception were reported as being jeopardised when workers become fatigued and these were important predictors of workplace accidents, making the reporting of incidents especially important. Trust in management was described by participants as being an important factor across multiple domains and critical for the flow of information, help seeking, team functioning, achievement-striving, resilience-building, personal and professional growth and communication. Participants stated that the relationship must also be present in the other direction and workers must feel trusted by their managers and employers, otherwise workers can end up feeling taxed and mentally exhausted. Trust between colleagues was reported as being crucial in high-risk work environments such as diving, and motivation was described as being lowered when burnout was present.

Productivity was described by participants as being a stressor because certain levels of production were expected by organisations and at times of high production, pressure is felt to increase as employees must maintain their normal tasks at these times. One participant had left their job due to high expectations during increased production periods.

Past experience, cultural differences and job-person fit were not mentioned by any participants and were omitted from the results model.

5.6.9 Health

Health factors that were relevant to the updated model were injuries, fatigue and sleep disturbances. Pain and motion sickness were not factors identified by participants and therefore were omitted from the final model.

The following articles were published based on the interview participants' results. These articles are located in Appendix 14 and Appendix 15.

Reference:

D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M., & Lagat, C. (2023). The effects of casualisation on mental wellbeing and risk management in the offshore oil and gas industry. *Universal Journal of Operations and Management*, 44-58.

<https://doi.org/10.37256/ujom.2220232965>

D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M., & Lagat, C. (2023). Psychosocial safety and health hazards and their impacts on offshore oil and gas workers. *Safety*, 9(3), 56. <https://doi.org/10.3390/safety9030056>

6. PSYCHOSOCIAL AUDIT TOOL

6.1 Introduction

This chapter focuses on the achievement of objective 6 of the study and details the steps in the development for the Offshore Psychosocial Audit Tool (OPAT) to address psychosocial stressors in the Australian offshore oil and gas working environment. It shows how the audit tool was developed from the research findings model (figure 5.1). The chapter explains how the audit tool is to be used and recommends how it should be implemented. A summary and benefits of the audit tool are discussed.

6.2 Scope

The current amended Work Health and Safety Act (WHS), 2020 (Western Australia) incorporates psychosocial risk in the workplace into its legislation. As noted by ACTU (2020), the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGS Act) (Commonwealth) should not diverge from standard work health and safety laws, yet the 2022 amendments to the WHS Act, Western Australia, which came into effect in March 2023, have intensified the disparities in protections for onshore and offshore workers. Nevertheless, the OPGGS Act states that facility operators and individuals responsible for part of an installation must take all reasonably practicable steps to guarantee that the facility and activities performed on that facility are safe, as well as implementing and maintaining safe systems of work. All reasonably practicable steps must be taken to control psychosocial hazards due to their ability to undermine workforce health and safety (NOPSEMA, 2021a). The audit tool and guide aims to provide a benchmark from which organisations can implement and promote a mentally healthy environment within the offshore workplace. It utilises an approach that identifies and assesses risks that not only affect organisational processes but also factors which affect the individual. The self-report toolkit enables employees to identify psychosocial stressors they experience to be present in their working environment and can assist practitioners in the diagnostic process (DMIRS, 2022c).

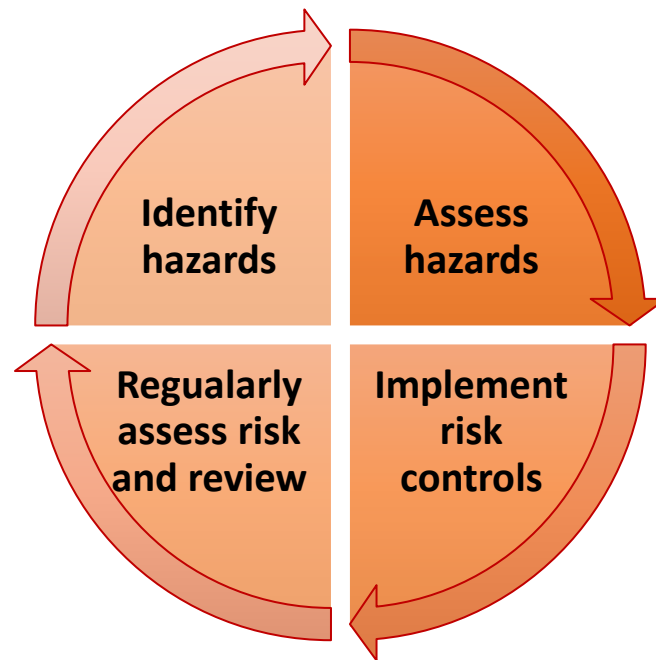
6.3 Development of the Offshore Psychosocial Audit Tool

The audit tool was developed in response to workplace psychosocial stressors identified by Australian offshore oil and gas workers. Through one-to-one interviews, contrasted with published literature, existing and emerging stressors were documented. Based on existing psychosocial audit tools, legislative guidelines and assessment measures, the Offshore

Psychosocial Audit Tool and the self-report checklist for offshore psychosocial risk factors are designed to be administered to employees. The process of identifying and managing workplace psychosocial hazards is shown in Figure 6.1.

Figure 6.1.

Identifying and managing workplace psychosocial hazards



Note: Adapted from *Controlling Psychosocial Hazards and Risk Factors Overview*, by Department of Mines, Industry Regulation and Safety, 2022b, <https://www.dmp.wa.gov.au/Safety/Controlling-psychosocial-26117.aspx>

Model Code of Practice: Managing psychosocial hazards at work, by Safe Work Australia, 2022, <https://www.safeworkaustralia.gov.au/doc/model-code-practice-managing-psychosocial-hazards-work>

6.4 Who should use the Audit Tool

With the aim of providing guidelines based on research which identified extensive issues in the Australian offshore oil and gas working environment, this audit tool is recommended for use by all offshore energy and resources organisations as well as other organisations who have employees located on facilities offshore. Issues identified may also extend to other work contexts, such as onshore mining work or any remote or isolated working environment.

6.5 Audit process

Some considerations for conducting the Psychosocial Audit are included in the table below.

Table 6.1

Offshore oil and gas industry psychosocial audit process

Steps	Activities	Outcomes
Plan the audit.	<ul style="list-style-type: none"> •Decide who will conduct the audit. •Review facility background information. •Obtain relevant company policies, plans, procedures, information sheets, and any other relevant company documents. • Review NOPSEMA Psychosocial Risk Management Guidance Note 2021 https://www.nopsema.gov.au/sites/default/files/documents/2021-12/A757599.pdf •Review the Offshore Petroleum and Greenhouse Gas Storage Act 2006, Part 6.8, Occupational Health & Safety http://classic.austlii.edu.au/au/legis/cth/consol_act/opaggsa2006446/ •Check for and review any other relevant legal requirements, Codes of Practice, or other government guidance related to psychosocial risk management. •Decide on the number of people to be interviewed in each relevant work area and then who will be interviewed as part of this audit. 	<ul style="list-style-type: none"> •Audit team members determined. •Plan and schedule developed. •Preparatory material for opening audit meeting obtained.
Understand psychosocial risk management at the facility.	<ul style="list-style-type: none"> •Conduct opening meeting. •Review key documents. •Take site tour. •Review internal risk control measures. •Conduct initial interviews. 	<ul style="list-style-type: none"> •Auditors have developed a strong working knowledge of key systems onsite. •Key issues to be reviewed identified.

<p>Assess strengths and weaknesses of internal controls</p>	<ul style="list-style-type: none"> •Review information obtained. •Identify psychosocial risks. •Assess effectiveness of risk control and mitigation measures. •Audit team members discuss assessment findings. 	<ul style="list-style-type: none"> •Strengths and weaknesses of the internal controls identified. •Priorities and strategies for verification work determined. •Reallocation of audit resources if required.
<p>Gather audit evidence</p>	<ul style="list-style-type: none"> •Develop testing and verification strategies. •Perform physical inspections. •Conduct focused interviews. •Examine data and records. •Perform verification testing. 	<ul style="list-style-type: none"> •Analysis of site programs with audit evidence to substantiate findings. •Status of compliance confirmed.
<p>Evaluate and summarise audit findings.</p>	<ul style="list-style-type: none"> •Review data collected. •Ensure factual accuracy of findings. •Integrate the findings of all audit team members. •Identify trends in the data. •Determine root causes. •Provide evidence to support findings. •List exceptions and observations. •Have debrief meetings. •Have audit close out meeting. 	<ul style="list-style-type: none"> •Draft of findings written. •Confirmation of findings accuracy. •Potential root causes of problems identified. •Early, clear, concise communication of findings provided to the company. •An understanding of company concerns demonstrated. •Preliminary draft report written.
<p>Report findings</p>	<ul style="list-style-type: none"> •Review working papers. •Prepare draft report. •Respond to comments and challenges on findings in draft report. •Prepare and complete final report. 	<p>Draft report summarising audit process and findings written. Final report written and presented.</p>

Note. Adapted from “SH&E Auditing” by M. Hansen and J. Knight, 2002 December, *Professional Safety*, 22-29. Copyright 2002 by American Society of Safety Engineers.

Auditing is a significant occupational health and safety component that assesses conformity to required standards in the workplace. Many industries and organisations worldwide use either internal or external monitoring systems. The guide to conducting the audit tool is in Appendix 21.

Not only should the audit record non-compliance but should also emphasise where examples of good practice are found (Bergh et al., 2016). After the audit is complete, organisations should consider an action plan to be approved by senior management. Results from the audit tools are then used to develop a psychologically healthy workplace management strategy. The results of the audit tool and the subsequent recommendations developed should be shared with management and key employees, particularly those who took part in interviews, focus groups or surveys. Ensuring that the observations in the audit are accurate is vital in order to retain the validity of findings. Without the ability to validate observations, they are contestable by management and can impede action on the issues found during the audit process. Moreover, challenges to audit findings can significantly undermine the audit’s credibility (Jenkins, 2016). The only recorded information should be what has been observed and validated. Validating observations before communicating findings to management will also avoid disagreements over the results of the audit between the two parties, which has been identified as the most common, but hostile, causes of tension (Chambers, 2017). Any new information provided by management which changes the audit results should be considered, however it should be investigated as to why the information was not communicated before the sharing of findings (Jenkins, 2016).

The sharing of results with management should not be automatically assumed to be a negative or damaging process for organisations. When managed correctly, the imparting of audit findings helps resolve issues and can even build rapport. Exercising tactfulness is crucial when presenting results and acknowledging achievements and efforts of the organisation and team demonstrates that the audit process is not focused solely on unsatisfactory workplace issues (Jenkins, 2016). Knowledge transfer after an audit has been completed is proposed to be most beneficial when delivered frequently and in written form and when suggestions for improvements are made (Hysong, 2009).

6.6 Summary and benefits

The Western Australian psychosocial risk management regulation, which came into effect on the 24th of December 2022, requires that any person conducting a business or undertaking must minimise or remove psychosocial risks as far as is reasonably possible (regulation 55). While there is an existing duty to minimise psychosocial risk in the workplace set out in the Work Health and Safety Act (2020) WA, the updated WA regulations place psychosocial safety on an equal footing with physical hazards and other risks such as the operating of machinery (DMIRS, 2022a).

The scope of the risk management process is the identification of hazards, assessment of the risks of the hazards causing harm, implementing risk control measures for hazards which may cause harm, monitoring the effectiveness of the risk control measures and making improvements where opportunities for improvements are identified.

6.7 Identifying hazards

Hazard identification is identifying if any object, process, or situation may have the potential to cause harm. Risk identification is assessing if the hazards identified have the potential to cause harm. The first step in controlling psychosocial hazards is to identify them. Common psychosocial stressors are set out in guidelines such as NOPSEMA's (2021a) *Psychosocial Risk Management* guidance note, however the model for offshore oil and gas working environments contains stressors identified through in-depth interviews with offshore workers. Identifying the hazards specific to the facility or vessel will allow organisations to recognise when employees are subjected to psychosocial hazards as well as monitor controls that are implemented to minimise or eliminate risks. Consulting workers when making decisions about health and safety risks and control measures, including psychosocial risks, is a legal requirement for onshore organisations (Safe Work Australia, 2022) and good practice for all organisations. Giving employees' feedback opportunities enable organisations to assess the effectiveness of risk control measures (ISO 45003:2021).

In 2018, the Australian Council of Trade Unions (ACTU) expressed concern that offshore workers are typically afforded inferior health and safety rights and protection, particularly in respect to health and safety representatives, entry into unions for the purposes of health and safety and requirements for health and safety in respect to high-risk work (ACTU, 2018). Assessing hazards requires the understanding of the type of harm which may result from the

hazard, how much harm this may do and how likely it is to happen (Safe Work Australia, 2022). Identifying psychosocial hazards can be done by consulting with employees about their experiences and perceptions through the self-report checklist, located in Appendix 20. Further measures may include meetings, group discussions and interviews with workers and employee representatives (COSHA, 2022, ISO 45003:2021, Safe Work Australia, 2022). Other methods include, but are not limited to:

- analysis of work tasks, rosters and shifts
- reviewing of job descriptions
- analysis of performance evaluations
- employee surveys
- workplace observations (teams and individuals)
- analysis of complaints and grievances
- accident and incident reports
- absenteeism trends

Risk treatment includes risk acceptance, risk transference, risk avoidance or risk reduction. If risk reduction is decided upon a range of options should be considered for risk reduction.

6.8 Implementing risk control measures

The approach that is taken to eliminate, control, or mitigate the risk is called risk management. The hierarchy of risk control measures is recommended to be used for risk management. The best control is to eliminate the risk. If this is not possible then the following options should be used in the following order. Substitution, engineering controls, administrative controls and the last option is the use of personal protective equipment.

Risk control measures should aim to eliminate risks, or if that is not reasonably practicable, the most effective risk control measures should be implemented. While each workplace differs from another, in most cases psychosocial risk can be successfully managed through a combination of safe systems of work, adequate training, good work design and appropriate supervision and instruction (COSHA, 2022).

6.9 Regularly monitoring risk and reviewing controls

Risk control measures need to be reviewed to ascertain whether they are working as intended. The organisation should aim to schedule regular meetings to discuss whether controls are

working to eradicate or minimise psychosocial hazards. An agenda with standing items on risk controls will ensure that the controls are monitored regularly (COSH, 2022). If opportunities for improvements are identified, revisions should be made to control measures in order to maintain a working environment that has minimal health and safety risks (Safe Work Australia, 2022). Consulting with employees and employee representatives at regular intervals will assist an organisation in determining the effectiveness of the way psychosocial hazards are being managed (ISO 45003:2021). Other processes for identifying psychosocial risks should be continued alongside existing interventions. Monitoring occurrences such as employee turnover, complaints and grievances, absences and the use of EAPs can also reveal trends happening within the workplace (COSH, 2022).

Reviewing controls put in place to manage psychosocial hazards is essential in confirming that measures are working as intended. Reviewing also provides opportunities to determine whether further hazards have been introduced during the implementation or modification of controls (COSH, 2022). The following measures were developed from a wide range of sources, such as interviews, published literature, governmental and governing body guidelines and regulations and independent inquiries. The following documents are also located in the Appendix:

- The Employee Self-Report Checklist (Appendix 20).
- The Mentally Healthy Audit Guide for the Offshore Oil and Gas Sector (Appendix 21).
- The Mentally Healthy Offshore Workplace Audit Tool (Appendix 22).

6.10 Audit Pilot Study Results

As stated in the Occupational health and safety management - Psychological health and safety at work - Guidelines for managing psychosocial risks (ISO 45003:2021), regular consultation with employees and their representatives can help determine the effectiveness of psychosocial risk controls. To check the comprehensibility of the audit tool for people who work in the offshore oil and gas industry, the audit tool and technical guide were sent to four participants from the focus group, pilot and main studies. Two permanent contractors with the position of Integrated Rating gave their feedback and there were two participants in senior management or representative roles – a Site Representative and a NOPSEMA representative.

Two participants had Integrated Ratings certificates, had extensive knowledge of the offshore oil and gas working environment and were accustomed to conducting audits. Integrated rating certification is an international qualification for Australian registered vessels operating in international waters. This certificate allows the holder to perform the duties or functions of Integrated Rating on ships of any size in any operating area. Feedback was also sought from a representative from the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Changes made to the audit tool included rewording some environmental guidelines, adding in a risk matrix and providing examples such as noise type guidance, to ensure that the audit questions and guide were easily understood by the person or people conducting the audit. The review by people working in the offshore oil and gas industry also provided the audit tool and guide with consensual validity and reliability.

The following chapter summarises the findings of the research and discusses the conclusions and recommendations.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

The aim of this research was to identify offshore oil and gas workers' mental health hazards and develop risk control measures. The research objectives were as follows:

- Communicate with offshore oil and gas employees to identify perceived work-related mental health hazards and causes.
- Assess systems of work, employer provided mental health education and support, and other strategies used in the offshore oil and gas industry to support employee mental health.
- Observe how offshore oil and gas employees' mental health needs are considered in return-to-work programs following a work-related injury or illness.
- Identify the negative economic effects for employers and employees due to psychosocial illnesses.
- Identify health and safety hazards in regard to poor mental health and its impacts on offshore installations.
- Develop a Mentally Healthy Workplaces Audit for use within the offshore oil and gas industry.

7.2 Objective 1 Conclusions

For objective one it was concluded that perceived work-related mental health hazards for offshore oil and gas workers were varied, however certain themes tended to recur throughout the interviews. Poor company-provided facilities such as accommodation, means of communication with families, food and entertainment cause employees to feel undervalued and result in cumulative stress. These situational stressors were generally company-provided and company-specific and therefore could be rectified relatively easily. Furthermore, improving facilities for offshore workers would constitute a proactive measure rather than a reactive one. Casual work status and the inability to attain permanent work was described as frustrating and stressful and employees felt that they were unable to speak up, often with good reason, as they had experienced exclusion both professionally and socially, denial of career progression, demotion and loss of work. Improving facilities and allowing casual employees the opportunity for permanent conversion would also contribute towards a better work-life balance. As permanent employment requires 12 months of continuous service, many companies only

employed workers for just less than 12 months, and then reemployed them after a short break. Casual employees were considered to be not employed every time that they returned onshore, so it was very difficult for a casual employee to become permanent, even if they had worked for the same company (casually) for many years.

7.3 Objective 2 Conclusions

Objective 2 was to assess systems of work, employer provided mental health education and support, and other strategies used in the offshore oil and gas industry to support employee mental health.

7.3.1 *Conclusions related to systems of work*

Systems of work are the collective range of work processes and procedures in an organisation, incorporating the themes discussed in the interviews, such as return-to-work interventions, psychosocial risk management and mental health promotion. These factors become part of an interdependent system within the workplace to produce desired outputs. Conclusions are that mental health promotion and education on offshore facilities is becoming more widespread, particularly in organisations that employ a permanent workforce. Considering that proactive measures positively affect organisational outputs and outcomes, the promotion of mental health is encouraging, although this varies between organisations.

Nevertheless, this research has identified that, return-to-work interventions for physical injuries do not adequately incorporate mental wellbeing or psychological barriers in returning to the workplace after a period of absence due to physical injury. Instead, organisations tend to focus on returning the employee to work as soon as possible. However, those who had taken some time off for stress or mental health issues said that they were given the time off they needed and their mental health needs were considered relatively highly. Other employees circumvent the need to disclose psychological difficulties by taking leave without explanation or by claiming that the time off is for something else. Casual workers often extend time between jobs if they do not feel they are able to return to work, concluding that employees without permanent status experience negative outcomes that extend past their job status.

From this, it can be concluded that the majority of most return-to-work processes have a negative effect on work processes and outputs. Lack of mental health checks for injuries and

pressure to return to work result in missed opportunities for early intervention into existing or developing mental health issues.

7.3.2 Conclusions on mental health education provided by the employer

It was concluded that while some organisations provide mental health education, others do not. Furthermore, both education and interventions to support employees are less likely to exist together in the workplace. For example, it was concluded that a workplace may display information posters regarding help available to employees, but was less likely to provide access to peer supporters at the same time. Likewise, facilities that had an appropriate level of support embedded in the workplace were reported as feeling less need to display relevant information within the workplace as it was considered that there was common knowledge and acceptance of mental health support. Alternatively, it was concluded that services were available, but their promotion was less visible and workers were unaware of them or had not found the need to access these services.

7.3.3 Conclusions on mental health support provided by the employer

Research conclusions were that most workplaces provided some sort of Employee Assistance Program or access to counselling services. Even though EAP services were used by many employees, effectiveness was not necessarily measured by usage rates. It was concluded that a more accurate way to determine whether EAPs are effective would be to assess changes from before intervention and after intervention. Furthermore, while the counselling service or hotline available to offshore workers were promoted as being confidential, results showed that confidentiality was broken on numerous occasions. Having little trust in the confidentiality of a service means less individuals are going to utilise it. It was concluded that trust between employer and employee was critical if workers were to feel that they could approach management to initiate a discussion about any mental health issues. Finding that confidentiality has been breached was reported as creating a lack of trust between and an apprehension on the employee's part to use the service.

7.3.4 Conclusions about other strategies

Conclusions were that one of the most highly praised strategies for mental health support was Mental Health 1st Aid. Participants reported that mental health first aid was a valuable and

welcome workplace initiative, increasing knowledge and positively influencing confidence in encouraging others to seek help.

While it was concluded that organisations are exploring more ways in which to try and support mental health, there were several areas where participants identified that improvements were needed, such as resilience training and self-awareness strategies that can help employees understand the sources of stress. Employees requested wellbeing interventions and having open communication with management, and it was concluded that a good relationship between employees and the employer fosters positive mental health.

Some strategies for support are either not proactive, are not taken seriously or are viewed as untrustworthy. Conclusions were that Mental Health 1st Aid was the most effective and popular wellbeing intervention, implying the importance of consulting with health and safety representatives and appointed mental health promotion delegates who often work at grass roots level in the company.

7.4 Objective 3 Conclusions

Objective 3 was to observe how offshore oil and gas employees' mental health needs are considered in return-to-work programs following a work-related injury or illness. Conclusions are that when assessing how offshore oil and gas employees' mental health needs are considered in return-to-work programs following a work-related injury or illness, the main theme that emerged was that organisations primarily focused on physical health. A return to work after a physical injury often neglects to consider how employees feel psychologically or emotionally about returning to work after a period of absence.

7.5 Objective 4 Conclusions

Objective 4 was to identify the negative economic effects for employers and employees due to psychosocial illnesses. With regards to the economic effects on employers and employees, actual figures could not be obtained, and although most participants did not think that it would have an impact, there was some agreement that poor mental health was likely to have an adverse effect, particularly on organisations, who must bear the cost of training a replacement employee and retraining a member of staff who is returning to work to alternative duties. There is also the issue of compensation and any negative publicity that may result from a workplace

accident. Conclusions were that the negative economic effects of psychosocial illnesses on employees and employers were difficult to gauge due to lack of access to official organisational financial losses due to poor mental health and wellbeing.

7.6 Objective 5 Conclusions

Objective 5 was to identify health and safety hazards in regard to poor mental health and its impacts on offshore installations. Conclusions were that poor mental health not only puts the individual at risk, but also others on the facility. A lack of focus, attention and awareness on a high-risk installation means the threats to safety extend to team members, where an accident is likely to affect colleagues due to its serious nature. It was concluded that fatigue and family-work interference were an unfavourable combination which left offshore employees susceptible to reduced alertness and poor focus. Conclusions were that certain spheres of the industry have seen little change, for example drilling and diving, where poor mental health is seen as a weakness and poses a risk to the wider team. Based on the research results it was concluded that change, or lack of change, can also result from organisational culture and evidence that individuals can bring about change and implement practical and workable solutions such as Mental Health 1st Aid.

7.7 Objective 6 Conclusions

Objective 6 was to develop a Mentally Healthy Workplaces Audit for use within the offshore oil and gas industry. This has been developed and is included in Appendix 22.

7.8 Study Aim Conclusions

The study aim was to identify offshore oil and gas workers' mental health hazards and develop risk control measures. From the proposed model of mental health hazards based on a review of previously published literature, areas were identified which act as risks to mental health. From this, conclusions were drawn about the adequacy of mental health promotion procedures and practices, substantiated by participants throughout the interviews. Some factors identified in the literature review model were not reported by participants and thus were removed from the model, but it was concluded that 44 of the factors identified in the review of published literature were mental health hazards for offshore oil and gas workers in Australia. In achieving the research aim, 31 new mental health hazards were recognised through this research. The research aim was also to develop risk control measures. The mental health risk control

measures required are in the Mentally Healthy Offshore Workplace Audit Tool (see Appendix 22) developed based on the research results and conclusions and in the recommendations below.

7.9 Recommendations

Recommendations are made based on the conclusions related to the risk control measures required. Interviews with offshore oil and gas workers revealed several areas where improvements are required. Priority areas are to provide options for reporting unacceptable behaviours or actions without reprisals and addressing insufficient company-provided facilities. Addressing the recommendations made for the major mental health hazards for offshore workers will increase job satisfaction, lower turnover rates and improve mental health overall. The following recommendations were made in order to improve the mental health of offshore oil and gas workers:

- Ensure and assure that employees who raise work-based issues or speak out about unsatisfactory behaviours or processes are not penalised in any way.
- Address direct and indirect harmful behaviours towards female employees, in line with current impactful research findings and recommendations, for example Champions of Change, 2020.
- End the use of shared accommodation, in particular ‘hot bedding’. In the absence of providing single cabins, provide employees with the ability to withdraw to a private space, away from colleagues and with visual and auditory privacy.
- Allow employees with casual work status to transition to permanent work status if they wish. Ending contracts at 11 months to avoid their obligation to reforms in the Fair Work Act is both dishonest and unfair.
- The environment should also provide satisfactory means of communication to enable employees to contact family and friends onshore. Internet should be able to accommodate usage at maximum capacity at any time. Further feedback from P13 indicated that the installation of the satellite internet service ‘Starlink’ had been a welcome introduction to the workplace and had been a ‘lifesaver’ in terms of mental health.
- Provide a better work-life balance, which would partly address the issue of what causes poor mental health offshore. Group activities, better exercise facilities and

entertainment options such as movies, board games and television are some suggestions to improve mental health while offshore.

- Assure confidentiality when employees are accessing counselling services or mental health programs and implement a system of accountability where confidentiality is breached.
- Use proactive measures to get to the underlying cause of poor mental health rather than reactive measures.
- Provide varied, good-quality food (see Sampson & Ellis, 2021).
- Make Mental Health 1st Aid compulsory (due to low uptake – P11).
- Provide information on how to build resilience, as well as practical guidance.

Recommendations have been made for risk control measures related to fear of speaking up, casual work status and lack of confidentiality from the management section of mental health hazards in the model developed based on the research results. Further Management factors related to risk control interventions are that they are proactive rather than reactive and that resilience training should be provided. There are also risk control recommendations relating to company-provided facilities (Situational factors), such as shared accommodation, poor internet and poor-quality food. Further risk control recommendations were made for achieving work-life balance and addressing gender harassment from the Interpersonal domain of the model developed based on the research results.

For future research, it would be beneficial to revisit the study of the offshore oil and gas working environment at a time when there was not a global pandemic taking place to investigate whether the industry has improved its management of workers' mental health. It is recommended that further research is conducted to determine the usefulness of the audit tool developed from this research once it has been implemented into offshore oil and gas companies' organisational frameworks, along with risk control measures, and to assess the effectiveness of the audit tool and risk control measures in facilitating positive worker mental health.

7.10 Research Summary

Analysis of research into the offshore oil and gas working environment revealed that previous research had been generally concentrated on the offshore platforms of the British (Parkes, 1992,

1998, 1999, 2010, 2012, 2015, 2017; Sutherland & Flin, 1989) and Norwegian (Bergh et al., 2016; Berthelsen et al., 2015) continental shelves of the North Sea as well as European waters (Sutherland & Cooper, 1991, 1996), Germany (Mette et al., 2017, 2018a, 2018b) the Middle East (Pavičić Žeželj et al., 2019) and Southern China (Chen et al., 2008, 2009). Furthermore, research looking at the workforce on offshore oil and gas platforms often focuses on the human factors which may affect the operation of the facility in terms of safety (see Parkes, 1993; Parkes & Swash, 2000), for example the effects of safety climate, shifts and psychosocial work environment on fatigue (Hystada et al., 2013). Some retrospective investigation was provided after serious events, such as the Piper Alpha disaster of 1988 (Cullen & Great Britain Department of Energy, 1990), however insights into the work setting of offshore oil and gas in Australia was practically non-existent. For Australia, research has been focused primarily on the onshore mining environment, mostly concentrating on the Pilbara region of Western Australia. Those working offshore have lacked representation in terms of the effects of psychosocial hazards in their working environment.

In 2020, the Australian Council of Trade Unions (ACTU, 2020) appealed for controls to be put in place for psychological injuries. In 2022, calls for further research into the mental health of offshore workers were made by Baygi et al., (2022), while in the same year the ETU and CFMEU both highlighted the shortcomings of the Fair Work Act Amendment. Reviewing hundreds of publications revealed that there were multiple sources of stressors for offshore workers, yet when this research was commenced there remained no legislation to protect these employees like their onshore counterparts. This research has shown the benefits of qualitative study through considering the perspective of offshore workers via one-to-one in-depth interviews and has made a significant and original contribution towards knowledge of psychosocial hazards and their effects on the mental health of the offshore workforce.

The practice of casualisation and hiring, firing, and rehiring was already a known practice in other industries (CFMEU, 2022) and the effects on mental health are clear due to the evidence in this study. Furthermore, gendered harassment on Australian offshore facilities is a rarely studied phenomena and it is genuinely unfortunate that more female employees were not able to be interviewed. Perhaps this reflects the poor representation of women in offshore jobs. Other findings have resulted in recommendations being drawn, such as improving company-provided facilities, improving internet service, protecting workers who speak out about issues, ensuring confidentiality in any psychological or counselling services offered, providing the

opportunity to take part in the Mental Health 1st Aid course, providing information on building resilience and taking a more proactive approach to employee mental health.

Findings from this study have narrowed the gap in knowledge by providing a holistic representation of individual experiences (Brannen, 2005) and have contributed towards a way forward in the field of psychosocial auditing with an audit tool developed from the interviews with participants who work offshore. Recommendations from this research will enable organisations to employ preventative measures to ensure a happier and more productive workforce.

8. REFERENCES

- Aje, O. O., Smith-Campbell, B., & Bett, C. (2018). Preventing musculoskeletal disorders in factory workers: Evaluating a new eight-minute stretching program. *Workplace Health & Safety, 66*(7), 343–347. doi:10.1177/2165079917743520
- Akerstedt, R., & Wright Jr., K. P. (2009). Sleep loss and fatigue in shift work and shift work disorder. *Sleep Medicine Clinics, 4*(2), 257-271. doi: 10.1016/j.jsmc.2009.03.001
- Albrecht, S. L., & Anglim, J. (2018). Employee engagement and emotional exhaustion of fly-in-fly-out workers: A diary study. *Australian Journal of Psychology, 70*(1), 66-75. doi: 10.1111/ajpy.12155
- Alhola, P., & Polo-Kantola, P. (2007). Sleep deprivation: Impact on cognitive performance. *Neuropsychiatric Disease and Treatment, 3*(5), 553-567. <https://www.tandfonline.com/doi/abs/10.2147/ndt.s12160203>
- Almandeel, S. M. (2014). *The impact of employees' personality traits in perceiving leadership styles and organizational attitude in Saudi Banking context* [Doctoral dissertation, University of Portsmouth]. https://pure.port.ac.uk/ws/portalfiles/portal/5777470/Seita_Almandeel_Thesis.pdf
- Aluja, A., García, Ó., & García, L. F. (2003). Relationships among extraversion, openness to experience, and sensation seeking. *Personality and Individual Differences, 35*(3), 671–680. doi:10.1016/S0191-8869(02)00244-1
- Amponsah-Tawiah, K., Leka, S. Jain, A., Hollis, D., & Cox, T. (2014). The impact of physical and psychosocial risks on employee well-being and quality of life: The case of the mining industry in Ghana. *Safety Science, 65*, 28-35. doi: 10.1016/j.ssci.2013.12.002
- Andrea, H., Bültmann, U., van Amelsvoort, L. G., & Kant, Y. (2009). The incidence of anxiety and depression among employees—the role of psychosocial work characteristics. *Depression and Anxiety, 26*(11), 1040-1048. doi: 10.1002/da.20516
- Andrei, D. M., Griffin, M. A., Grech, M., & Neil, A. (2020). How demands and resources impact chronic fatigue in the maritime industry: The mediating effect of acute fatigue, sleep quality and recovery. *Safety Science, 121*, 362–372. [https://doi.org/ 10.1016/j.ssci.2019.09.019](https://doi.org/10.1016/j.ssci.2019.09.019).
- Arends, I., van der Klink, J., & Bültmann, U. (2010). Prevention of recurrent sickness absence among employees with common mental disorders: Design of a cluster-randomised controlled trial with cost-benefit and effectiveness evaluation. *BMC Public Health, 10*(132), 1-9. <http://www.biomedcentral.com/1471-2458/10/132>

- Armstrong, L., & Rimes, K. A. (2016). Mindfulness-based cognitive therapy for neuroticism (stress vulnerability): A pilot randomized study, *Behavior Therapy*, *47*(3), 287-298. doi: 10.1016/j.beth.2015.12.005.
- Asare, B. Y. A., Thomas, E., Affandi, J. S., Schammer, M., Brown, P., Pilbeam, M., Harris, C., Ellison, C., Kwasnicka, D., Powell, D., Reidy, C. M., & Robinson, S. (2021). Mental well-being during COVID-19: A cross-sectional study of fly-in fly-out workers in the mining industry in Australia. *International Journal of Environmental Research and Public Health*, *18*(22), 12264. doi: 10.3390/ijerph182212264
- Ashoorian, D., Albrecht, K. L., Baxter, C., Giftakis, E., Clifford, R., Greenwell-Barnden, J., & Wylde, T. (2019). Evaluation of mental health first aid skills in an Australian university population. *Early Intervention in Psychiatry*, *13*(5), 1121-1128. doi: 10.1111/eip.12742
- Atlantis, E., Chow, C. M., Kirby, A., & Singh, M. F. (2004). An effective exercise-based intervention for improving mental health and quality of life measures: A randomized controlled trial. *Preventative Medicine*, *39*, 424-434. doi:10.1016/j.ypmed.2004.02.007
- Attridge, M. (2019). A global perspective on promoting workplace mental health and the role of employee assistance programs. *American Journal of Health Promotion*, *33*(4), 622-629. doi: 10.1177/0890117119838101c
- Austin, D. E. (2006). Women's work and lives in offshore oil. In N. Dannhaeuser and C. Werner (Eds.), *Markets and market liberalization: Ethnographic reflections* (pp. 163-204). Emerald Group Publishing Limited. [https://doi.org/10.1016/S0190-1281\(05\)24006-4](https://doi.org/10.1016/S0190-1281(05)24006-4)
- Australian Bureau of Statistics. (2018). *Causes of Death, Australia*. Catalogue 3303.0 Canberra: Australian Bureau of Statistics [updated 25 September/2019]. <https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/3303.0Main+Features12018?OpenDocument>.
- Australian Bureau of Statistics. (November 2022). Employed persons by Industry sub-division of main job (ANZSIC) and sex. <https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia-detailed/latest-release>
- Australian Council of Trade Unions. (April 2018). *Work health and safety of workers in the offshore petroleum industry*. <https://www.actu.org.au/our-work/policies-publications-submissions/2018/work-health-and-safety-of-workers-in-the-offshore-petroleum-industry>
- Australian Council of Trade Unions. (October 2020). *Offshore workers need better protection*. <https://www.actu.org.au/our-work/policies-publications-submissions/2020/offshore-workers-need-better-protection>

- Australian Government. Department of the Prime Minister and Cabinet (n.d.). *The major steps in a cost-benefit analysis*. <https://www.pmc.gov.au/ria-mooc/extra-detail/cba/major-steps-cost-benefit-analysis>
- Australian Human Rights Commission. (2018). *Everyone's business: Fourth national survey on sexual harassment in Australian workplaces, 2018*, 40. <https://humanrights.gov.au/our-work/sex-discrimination/publications/respectwork-sexual-harassment-national-inquiry-report-2020#fn7>
- Australian Human Rights Commission. (2020). *Respect@work: National inquiry into sexual harassment in Australian workplaces, 2020*. <https://humanrights.gov.au/our-work/sex-discrimination/publications/respectwork-sexual-harassment-national-inquiry-report-2020>
- Australian Institute of Health and Welfare. (2019). *Health expenditure Australia 2017–18*. Cat. no. HWE 077. Canberra: AIHW. <https://www.aihw.gov.au/reports/australias-health/workers-compensation>
- Australian Maritime Safety Authority. (2020). *Fatigue guidelines - managing and reducing the risk of fatigue at sea*. <https://www.amsa.gov.au/vessels-operators/seafarer-safety/fatigue-guidelines-managing-and-reducing-risk-fatigue-sea>
- Australian Workers' Union. (2021). *Job security in the modern Australian workforce - Submission to the select committee on job insecurity*. <https://awu.net.au/wp-content/uploads/2022/01/20210915-Job-security.pdf>
- Avolio, B. J. & Gardner, W. L. (2005). Authentic leadership development: Getting to the root of positive forms of leadership. *Leadership Quarterly*, 16(3), 315-338. doi:10.1016/j.leaqua.2005.03.001
- Ayub, N., AlQurashi, S. M., Al-Yafi, W., & Jehn, K. (2017). Personality traits and conflict management styles in predicting job performance and conflict. *International Journal of Conflict Management*, 28(5), 671-694.
- Baethge, A., & Rigotti, T. (2013). Interruptions to workflow: Their relationship with irritation and satisfaction with performance, and the mediating roles of time pressure and mental demands. *Work & Stress*, 27(1), 43-63. <http://dx.doi.org/10.1080/02678373.2013.761783>
- Bailey-Kruger, A. (2012). *The psychological wellbeing of women operating mining machinery in a fly-in fly-out capacity* [Master's thesis, Murdoch University]. <http://ro.ecu.edu.au/theses/1682>
- Baillien, E., De Cuyper, N., & De Witte, H. (2011). Job autonomy and workload as antecedents of workplace bullying: A two-wave test of Karasek's job demand control model for targets and perpetrators. *Journal of Occupational and Organizational Psychology*, 84, 191–208. doi: 10.1348/096317910x508371

- Baillien, E., & De Witte, H. (2009). Why is organizational change related to workplace bullying? Role conflict and job insecurity as mediators. *Economic and Industrial Democracy*, 30(3), 348–371. doi: 10.1177/0143831X09336557
- Baillien, E., Neyens, I., De Witte, H., & De Cuyper, N. (2009). Towards a three-way model of workplace bullying: A qualitative study. *Journal of Community and Applied Social Psychology*, 19, 1–16. doi:10.1002/casp.977
- Bakker, A., & Demerouti, E. (2006). The Job Demands-Resources model: State of the art. *Journal of Managerial Psychology*, 22(3), 309-328. doi: 10.1108/02683940710733115
- Barclay, M. A., Harris, J., Everingham, J. A., Kirsch, P., Arend, S., Shi, S., & Kim, J. (2014). Factors linked to the well-being of 'fly-in, fly-out' workers. *AusIMM Bulletin*, (2), 40-43. <https://search.informit.org/doi/10.3316/ielapa.355750503867420>
- Barifcani, A. (2019). *LNG Risk Management and Safety* [Manual]. Curtin University.
- Barlow, L., & Iverson, R. D. (2005). Workplace safety. In J. Barling, E. K. Kelloway & M. R. Frone (Eds.), *Handbook of work stress*. Sage (pp. 247–265).
- Barlow, D. H., Sauer-Zavala, S. Carl, J. R., Bullis, J. R., & Ellard, K. K. (2014). The nature, diagnosis, and treatment of neuroticism: Back to the future. *Clinical Psychological Science*, 2(3), 344-365. doi: 10.1177/2167702613505532
- Barney, L. J., Griffiths, K. M., Jorum, A. F., & Christensen, H. (2006). Stigma about depression and its impact on help-seeking intentions. *Australian and New Zealand Journal of Psychiatry*, 40(1), 51–54. <https://doi.org/10.1111/j.1440-1614.2006.01741.x>
- Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44(1), 1-26. doi: 10.1111/j.1744-6570.1991.tb00688.x
- Bass, B. M., & Riggio, R. E. (2006). *Transformational leadership* (2nd ed.). Lawrence Erlbaum Associates, Inc.
- Battams, S., Roche, A. M., Fischer, J. A., Lee, N. K., Cameron, J., & Kostadinov, V. (2014). Workplace risk factors for anxiety and depression in male dominated industries: A systematic review. *Health Psychology and Behavioral Medicine: An Open Access Journal*, 2(1), 983-1008. doi: 10.1080/21642850.2014.954579
- Baygi, F., Khonsari, N. M., Seif, E., Asayesh, H., & Qorbani, M. (2022). The mental health status of offshore oil platform workers during the COVID-pandemic. *Frontiers in Psychiatry*, 13, 1009602-1009602. doi: 10.3389/fpsyt.2022.1009602
- Beardwood, B. A., Kirsh, B., & Clark, N. J. (2005). Victims twice over: Perceptions and experiences of injured workers. *Qualitative Health Research*, 15(1), 30-48. doi: 10.1177/1049732304268716

- Behson, S. C. (2002). Coping with family-to-work conflict: The role of informal work accommodations to family. *Journal of Occupational Health Psychology, 7*(4), 324-341. doi: 10.1037/1076-8998.7.4.324
- Bergh, L. I. V., Hinna, S., Leka, S., & Zwetsloot, G. I. J. M. (2016). Developing and testing an internal audit tool of the psychosocial work environment in the oil and gas industry. *Safety Science, 88*, 232-241. doi: 10.1016/j.ssci.2015.06.003
- Berthelsen, M., Pallesen, S., Bjorvatn, B., & Knardahl, S. (2015). Shift schedules, work factors, and mental health among onshore and offshore workers in the Norwegian petroleum industry. *Industrial Health, 53*, 280–292. doi: 10.2486/indhealth.2014-018
- Bertrand, J. T., Brown, J. E., & Ward, V. M. (1992). Techniques for analyzing focus group data. *Evaluation Review, 16*(2), 198-209. doi: 10.1177/0193841X9201600206
- Beus, J. M., Dhanani, L. Y., McCord, M. A., & Chen, G. (2015). A meta-analysis of personality and workplace safety: Addressing unanswered questions. *Journal of Applied Psychology, 100*(2), 481-498. doi: 10.1037/a0037916
- Bhagat, R. S., Allie, S. M., & Ford, D. L. (1991). Organizational stress, personal life stress and symptoms of life strains: An inquiry into the moderating role of styles of coping. *Journal of Social Behavior and Personality, 6*, 163–184. doi: 10.1016/0001-8791(89)90028-6
- Bickman, L., & Rog, D. (2008). Applied research design: A practical approach. In L. Bickman & D. Rog, (Eds.), *The Sage handbook of applied social research methods* (2nd ed., pp. 3-43). SAGE Publications.
- Biersner, R. J., & Hogan, R. (1984). Personality correlates of adjustment in isolated work groups. *Journal of Research in Personality, 18*(4), 491-496. doi: 10.1016/0092-6566(84)90007-2
- Bies, R. J., & Tripp, T. M. (1998). Two faces of the powerless. Coping with tyranny in organizations. In R. M. Kramer & M. A. Neale (Eds.), *Power and influence in organizations* (pp. 203–219). Sage.
- Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a nod to validation? *Qualitative Health Research, 26*(13), 1802–1811. doi: 10.1177/1049732316654870
- Bjerkan, A. M. (2010) Health, environment, safety culture and climate – analysing the relationships to occupational accidents. *Journal of Risk Research, 13*(4), 445-477. doi: 10.1080/13669870903346386
- Björkqvist, K., Österman, K., & Lagerspetz, K. M. (1994). Sex differences in covert aggression among adults. *Aggressive Behavior, 20*(1), 27-33. doi: 10.1002/1098-2337(1994)20:1<27::AID-AB2480200105>3.0.CO;2-Q

- Blanchflower, D. G., & Bryson, A. (2020). *Now unions increase job satisfaction and well-being* (No. w27720). National Bureau of Economic Research.
<https://www.nber.org/papers/w27720>
- BOC Gas. (2017, March), “Safety Data Sheet – Propane”, 087 datasheet.
- BOC Gas. (2018, May), “Safety Data Sheet – Nitrogen”, 069 datasheet.
- Bogg, T., & Roberts, B. W. (2013). The case for conscientiousness: Evidence and implications for a personality trait marker of health and longevity. *Annals of Behavioral Medicine*, 45(3), 278-88. <http://dx.doi.org/10.1007/s12160-012-9454-6>
- Boies, K., Fiset, J., & Gill, H. (2015). Communication and trust are key: Unlocking the relationship between leadership and team performance and creativity. *The Leadership Quarterly*, 26(6), 1080-1094. <http://dx.doi.org/10.1016/j.leaqua.2015.07.007>
- Bollen, K. A. (1989). *Structural equations with latent variables*. John Wiley & Sons.
http://link.library.curtin.edu.au/p?pid=CUR_ALMA51166770280001951
- Bordia, P., Restubog, S. L. D., Jimmieson, N. L., & Irmer, B. E. (2011). Haunted by the past: Effects of poor change management history on employee attitudes and turnover. *Group & Organization Management*, 36(2), 191-222. <http://dx.doi.org/10.1177/1059601110392990>
- Borghans, L., Duckworth, A. L., Heckman, J. J., & Ter Weel, B. (2008). The economics and psychology of personality traits. *The Journal of Human Resources*, 43(4), 972-1059. doi: 10.3368/jhr.43.4.972
- Bothma F. C., Lloyd S., & Khapova, S. (2015) Work identity: Clarifying the concept. In P. Jansen & G. Roodt (Eds.), *Conceptualising and measuring work identity* (pp. 23-51). Springer.
https://doi.org/10.1007/978-94-017-9242-4_2
- Bowers, J., Lo, J., Miller, P., Mawren, D., & Jones, B. (2018). Psychological distress in remote mining and construction workers in Australia. *Medical Journal of Australia*, 208(9), 391-397. doi: 10.5694/mja17.00950
- Bowling, N. A., & Beehr, T. A. (2006). Workplace harassment from the victim’s perspective: A theoretical model and meta-analysis. *Journal of Applied Psychology*, 91, 998–1012. doi: 10.1037/0021-9010.91.5.998
- Brannen, J. (2005) Mixing methods: The entry of qualitative and quantitative approaches into the research process. *International Journal of Social Research Methodology*, 8(3), 173-184. doi: 10.1080/13645570500154642
- Braverman, M. (2003). Managing the human impact of crisis. *Risk Management*, 50(5), 10-14.
<https://www.proquest.com/scholarly-journals/managing-human-impact-crisis/docview/226998789/se-2>

- Breen, R. L. (2006). A practical guide to focus-group research. *Journal of Geography in Higher Education*, 30(3), 463-475. doi: 10.1080/03098260600927575
- Breivik, G., Sand, T. S., & Sookermany A. M. (2020). Risk-taking attitudes and behaviors in the Norwegian population: The influence of personality and background factors. *Journal of Risk Research*, 23(11), 1504-1523. doi: 10.1080/13669877.2020.1750455
- Britt, T.W., Shen, W., Sinclair, R. R., Grossman, M. R., & Klieger, D. M. (2016). How much do we really know about employee resilience? *Industrial and Organizational Psychology: Perspectives on Science and Practice*, 9(2), 378–404. doi:10.1017/iop.2015.107
- Brohan, E., Henderson, C., Little, K., & Thornicroft, G. (2010). Employees with mental health problems: Survey of UK employers' knowledge, attitudes and workplace practices. *Epidemiology and Psychiatric Sciences*, 19(4), 326-332. 10.1017/S1121189X0000066X
- Brohan, E., Henderson, C., Wheat, K., Malcolm, E., Clement, S., Barley, E. A, Slade, M. & Thornicroft, G. (2012). Systematic review of beliefs, behaviours and influencing factors associated with disclosure of a mental health problem in the workplace. *BMC Psychiatry*, 12(1), 11. doi: 10.1186/1471-244X-12-11
- Brook, E., Freeman, M., & Ditchburn, G. (2020). The impact of fly-in, fly-out (FIFO) on the health and well-being of employees: What organisations can do to mitigate the risks and improve outcomes. *The APPEA Journal*, 60(2), 397-402. doi: 10.1071/AJ19146
- Brooker, A. S., & Eakin, J. M. (2001). Gender, class, work-related stress and health: Toward a power-centred approach. *Journal of Community Applied Social Psychology*, 11, 97-109. doi:10.1002/casp.620
- Brooks, S. K., & Greenberg, N. (2022). Mental health and psychological wellbeing of maritime personnel: A systematic review. *BMC psychology*, 10(1), 1-26. doi: 10.1186/s40359-022-00850-4
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The lancet*, 395(10227), 912-920. <https://doi.org/10.1016/>
- Brown, A., Susomrith, P., Sitlington, H., & Scott, G. (2014). Determinants of employee-turnover intentions in atypical employment: The FIFO mining industry in Western Australia. *Australian Bulletin of Labour*, 40(2), 116-137. <https://search.informit.org/doi/epdf/10.3316/informit.789898733717818>
- Buck, M. A. (2011). *Proactive personality and big five traits in supervisors and workgroup members: Effects on safety climate and safety motivation* [Unpublished doctoral dissertation]. Portland State University.

- Bureau of Meteorology (2020). *Climatology of tropical cyclones in Western Australia*.
<http://www.bom.gov.au/cyclone/climatology/wa.shtml>
- Bureau of Meteorology. (2023). *Climatology of tropical cyclones in Western Australia*.
<http://www.bom.gov.au/cyclone/climatology/wa.shtml>
- Burns, N., & Grove, S. K. (1997). *The practice of nursing research: Conduct, critique and utilization* (2nd ed.). W. B. Saunders.
- Butani, S. J. (1988). Relative risk analysis of injuries in coal mining by age and experience at present company. *Journal of Occupational Accidents*, *10*, 209–216. doi: 10.1016/0376-6349(88)90014-4
- Cairns, J., Adie, W., & Osman, L. (2008). Measurement of risk perception in the offshore oil and gas industry. *Risk Management*, *10*(3), 205-217. doi: 10.1057/rm.2008.4
- Carmona-Barrientos, I., Gala-León, F. J., Lupiani-Giménez, M., Cruz-Barrientos, A., Lucena-Anton, D., & Moral-Munoz, J. A. (2020). Occupational stress and burnout among physiotherapists: A cross-sectional survey in Cadiz (Spain). *Human Resources for Health*, *18*(1), 1-10. doi: 10.1186/s12960-020-00537-0
- Carstensen, L. L., Turan, B., Scheibe, S., Ram, N., Ersner-Hershfield, H., Samanez-Larkin, G. R., Brookes, K. P., & Nesselroade, J. R. (2011). Emotional experience improves with age: Evidence based on over 10 years of experience sampling. *Psychology and Aging*, *26*(1), 21. doi: 10.1037/a0021285
- Carter, T. (2008). *An exploration of Generation Y's experiences of offshore Fly-in/Fly-out (FIFO) employment* [Honours dissertation, Edith Cowan University].
https://ro.ecu.edu.au/theses_hons/1166/
- Carter, L. & Stanford, J. (2021). *Investing in better mental health in Australian workplaces*. The Australia Institute and Centre for Future Work.
<https://apo.org.au/sites/default/files/resource-files/2021-05/apo-nid313144.pdf>
- Casey, T. W., Hu, X., Lee, Q. Y., & Carden, C. (2021). *Stigma towards injured or ill workers*.
<https://www.safeworkaustralia.gov.au/doc/research-causes-and-impact-stigma-workplaces-and-approaches-creating-positive-workplace>
- Caska, B. (2019). Psychometrics at work: How to ensure test results you can trust. *DBS Business Review*, *3*, 73-81. doi: 10.22375/dbr.v3i0.60
- Chambers, R. (2017). Management vs internal audit: 5 frequent sources of tension. *Internal Auditor*.
<https://iaonline.theiia.org/blogs/chambers/2017/Pages/Management-vs-Internal-Audit-5-Frequent-Sources-of-Tension.aspx>

- Champions of Change Coalition. (2020). *Disrupting the system: Preventing and responding to sexual harassment in the workplace*.
<https://championsofchangecoalition.org/resource/disrupting-the-system/>
- Charles, J. L. K., & Dattalo, P. V. (2018). Minimizing social desirability bias in measuring sensitive topics: The use of forgiving language in item development. *Journal of Social Service Research, 44*(4), 587-599. doi: 10.1080/01488376.2018.1479335
- Chellappa, S. L., Morris, C. J., & Scheer, F. A. J. L. (2019). Effects of circadian misalignment on cognition in chronic shift workers. *Scientific Reports, 9*(1), 1-9.
<https://doi.org/10.1038/s41598-018-36762-w>.
- Chen, J-K., & Chen, I-S. (2013). Don't worry, I'm with you: Can visionary leadership release neurotic employees for more perceived innovative interactions? *Innovation: Management, Policy & Practice, 15*(2), 215–223. doi: 10.5172/impp.2013.15.2.215
- Chen, W., Wong, T., & Yu, T. (2008). Association of occupational stress and social support with health-related behaviors among Chinese offshore oil workers. *Journal of Occupational Health, 50*(3), 262-269. doi: 10.1539/joh.L7149
- Chen, W., Wong, T., & Yu, T. (2009). Influence of occupational stress on mental health among Chinese offshore oil workers. *Scandinavian Journal of Public Health, 37*(7), 766-773.
 doi:10.1093/occmed/kqp118
- Chiri, K., & Jansz, J. (2016). Examining the relationship between safety culture and safety climate and the role leading safety indicators play in enhancing safety performance in the oil and gas industry. *World Safety Journal, 25*(2). http://worldsafety.org/wp-content/uploads/2016/11/WSJ_VolXXV_No2_2016.pdf
- Cho, S. (2017). Explaining the overlap between bullying perpetration and bullying victimization: Assessing the time-ordered and correlative relationships. *Children and Youth Services Review, 79*, 280-290. doi: 10.1016/j.childyouth.2017.06.016
- Cho, J., & Trent, A. (2006). Validity in qualitative research revisited. *Qualitative Research, 6*(3), 319-340. doi: 10.1177/1468794106065006
- Chou, H. T. G., & Edge, N. (2012). “They are happier and having better lives than I am”: The impact of using Facebook on perceptions of others' lives. *Cyberpsychology, Behavior, and Social Networking, 15*(2), 117-121. doi: 10.1089/cyber.2011.0324
- Clarke, S., & Robertson, I. (2008). An examination of the role of personality in work accidents using meta-analysis. *Applied Psychology, 57*(1), 94-108. doi: 10.1111/j.1464-0597.2007.00267.x
- Cleary, A. (2005). Death rather than disclosure: Struggling to be a real man. *Irish Journal of Sociology, 14*(2), 155–176. <https://doi.org/10.1177/079160350501400209>

- Clifford, S. (2009). *The effects of fly-in/fly-out commute arrangements and extended working hours on the stress, lifestyle, relationship and health characteristics of Western Australian mining employees and their partners: Report of research findings*. [Undergraduate honors thesis, University of Western Australia]. <https://apo.org.au/node/99426>
- Cohen, D. A., Wang, W., Wyatt, J. K., Kronauer, R. E., Dijk, D. J., Czeisler, C. A., & Klerman, E. B. (2010). Uncovering residual effects of chronic sleep loss on human performance. *Science Translational Medicine*, 2(14). doi: 10.1126/scitranslmed.3000458
- Collinson, D. L. (1998). "Shift-ing Lives": Work-home pressures in the North Sea oil industry. *Canadian Review of Sociology/Revue canadienne de sociologie*, 35(3), 301-324. doi: 10.1111/j.1755-618X.1998.tb00725.x
- Collinson, D. L. (1999). Surviving the rigs: Safety and surveillance on North Sea oil installations. *Organization studies*, 20(4), 579-600. doi: 10.1177/0170840699204003
- Collins, S. K., & Collins, K. S. (2002). Micromanagement - A costly management style. *Radiology Management*, 24(6), 32–35. <https://pubmed.ncbi.nlm.nih.gov/12510608/>
- Colquhoun, S., Biggs, H. C., Dovan, N., Wang, X., & Mohamed, S. (2016). *An occupational study of the mental health of FIFO/DIDO construction workers*. International Conference on Innovative Production and Construction, 3–5 October 2016. Perth: Curtin University.
- Commission for Occupational Safety and Health. (2019). *Mentally healthy workplaces for fly-in fly-out (FIFO) workers in the resources and construction sectors – Code of practice*. Department of Mines, Industry Regulation and Safety, Western Australia. <https://www.commerce.wa.gov.au/publications/mentally-healthy-workplaces-fly-fly-out-fifo-workers-resources-and-construction-sectors>
- Commission for Occupational Safety and Health. (2022). *Psychosocial hazards in the workplace: Code of practice*. Department of Mines, Industry Regulation and Safety. Government of Western Australia. <https://www.commerce.wa.gov.au/worksafe/mentally-healthy-workplaces-codes-practice>
- Compton, R. L., & McManus, J. G. (2015). Employee assistance programs in Australia: Evaluating success. *Journal of Workplace Behavioral Health*, 30 (1–2), 32–45. <https://doi.org/10.1080/15555240.2015.998971>.
- Conchie, S. M., & Donald, I. J. (2006). The role of distrust in offshore safety performance. *Risk Analysis*, 26(5), 1151-1159. doi: 10.1111/j.1539-6924.2006.00822.x
- Construction, Forestry, Mining and Energy Union (Construction and General Division) (2022). *Submission to the statutory review of casual employment legislation*, 5 August 2022, 3-5. <https://www.dewr.gov.au/workplace-relations-australia/consultations/statutory-review-casual-employment-legislation/submission/14852>

- Cooper, C. L., & Sutherland, V. J. (1987). Job stress, mental health, and accidents among offshore workers in the oil and gas extraction industries. *Journal of Occupational Medicine*, 119-125.
- Correia Leal, C., Ferreira, A. I., & Carvalho, H. (2022). “Hide your sickness and put on a happy face”: The effects of supervision distrust, surface acting, and sickness surface acting on hotel employees' emotional exhaustion. *Journal of Organizational Behavior*, 1– 17. <https://doi.org/10.1002/job.2676>
- Costa, Jr., P. T., & McCrae, R. R. (1992). Four ways five factors are basic. *Personality and Individual Differences*, 13(6). doi: 10.1016/0191-8869(92)90236-I
- Cotton, P. (2006). Management of injured workers with psychosocial barriers. *Australian Family Physician*, 35(12), 958-961. <https://search.informit-com.au.dbgw.lis.curtin.edu.au/documentSummary;dn=360983219989263;res=IELHEA>
- Cousin, L., Roucoux, G., Petit, A. S., Baumann-Coblentz, L., Torrente, O. R., Cannafarina, A., Chassany, O., Duracinsky, M., & Carrieri, P. (2022). Perceived stigma, substance use and self-medication in night-shift healthcare workers: A qualitative study. *BMC health services research*, 22(1), 1-11. <https://doi.org/10.1186/s12913-022-08018-x>
- Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. SAGE Publications.
http://link.library.curtin.edu.au/p?pid=CUR_ALMA51116644810001951
- Creswell, J. W. (2012). *Educational research: Planning, conducting and evaluating quantitative and qualitative research* (4th ed.). Pearson.
http://link.library.curtin.edu.au/p?pid=CUR_ALMA51188663530001951
- Creswell, J. W. (2014). *A concise introduction to mixed methods research*. SAGE Publications.
- Cropanzano, R., James, K., & Konovsky, M.A. (1993). Dispositional affectivity as a predictor of work attitudes and job performance. *Journal of Organizational Behavior*, 14, 595–606. doi: 10.1002/job.4030140609
- Crouch, M., & McKenzie, H. (2006). The logic of small samples in interview-based qualitative research. *Social Science Information*, 45(4), 483–499.
<https://doi.org/10.1177/0539018406069584>
- Csiernik, R., Cavell, M., & Csiernik, B. (2021). EAP evaluation 2010–2019: What do we now know? *Journal of Workplace Behavioral Health* 36(2), 105-124. doi: 10.1080/15555240.2021.1902336
- Cubel, M., Nuevo-Chiquero, A., Sanchez-Pages, S., & Vidal-Fernandez, M. (2016). Do personality traits affect productivity? Evidence from the laboratory. *The Economic Journal*, 126, 654–681. doi: 10.1111/eoj.12373

- Cullen, W. D., & Great Britain Department of Energy. *The public enquiry into the Piper Alpha disaster*. HMSO 1990. <https://www.hse.gov.uk/offshore/piper-alpha-disaster-public-inquiry.htm>
- Curşeu, P. L., Ilies, R., Vîrgă, D., Maricuţoiu, L., & Sava, F. A. (2019). Personality characteristics that are valued in teams: Not always “more is better”. *International Journal of Psychology*, 54(5), 638-649. doi: 10.1002/ijop.12511
- Cypress, B. S. (2017). Rigor or reliability and validity in qualitative research: Perspectives, strategies, reconceptualization, and recommendations. *Dimensions of Critical Care Nursing*, 36(4), 253-263. doi: 10.1097/DCC.0000000000000253
- da Costa, B. R., Sanley, S., & Azevedo, D. (2005). *Short-term effect of stretching on the palpation pain threshold of the superior trapezius muscle: A double-blind study*. Proceedings of the XVI COBRAAF (Congresso Brasileiro de Fisioterapia).
- Daly, Z., Slemon, A., Richardson, C. G., Salway, T., McAuliffe, C., Gadermann, A. M., Thomson, K. C., Hirani, S., & Jenkins, E. K. (2021). Associations between periods of COVID-19 quarantine and mental health in Canada. *Psychiatry Research*, 295, 113631. doi: 10.1016/j.psychres.2020.113631
- Décamps, G. & Rosnet, E. (2005). A longitudinal assessment of psychological adaption during a winter-over in Antarctic. *Environment and Behavior*, 37(3), 418-435. doi: 10.1177/0013916504272561
- De Clercq, D., & Pereira, R. (2021). No news, no excitement, no creativity: Moderating roles of adaptive humour and proactivity. *Creativity and Innovation Management*, 30(4), 680-696. <https://doi.org/10.1111/caim.12467>
- DeJordy, R. (2008). Just passing through: Stigma, passing, and identity decoupling in the workplace. *Group & Organization Management*, 33(5), 504-531. doi:10.1177/1059601108324879.
- Dembe, A. E., Delbos, R., Erickson, J. B., & Banks, S. M. (2007). Associations between employees' work schedules and the vocational consequences of workplace injuries. *Journal of Occupational Rehabilitation*, 17, 641-651. doi: 10.1007/s10926-007-9098-8
- Department of Mines, Industry Regulation and Safety. (2016). *Cyclone – Emergency preparation, planning and preparedness*. <https://www.commerce.wa.gov.au/worksafe/cyclone-emergency-preparation-planning-and-preparedness>
- Department of Mines, Industry Regulation and Safety and WorkSafe. (2018). *Systems of work, work organisation and work practices*. https://www.commerce.wa.gov.au/sites/default/files/atoms/files/systems_of_work.pdf

- Department of Mines, Industry Regulation and Safety. (2020a). *Mentally healthy workplaces audit – technical guide*. <https://www.commerce.wa.gov.au/publications/mentally-healthy-workplaces-audit-tool-and-technical-guide>
- Department of Mines, Industry Regulation and Safety. (2020b). *Working safely in hot conditions*. <https://www.commerce.wa.gov.au/worksafe/working-safely-hot-conditions>
- Department of Mines, Industry Regulation and Safety. (2021). *Psychosocial hazards in the workplace. Draft Code of Practice*. https://www.commerce.wa.gov.au/sites/default/files/atoms/files/221133_cp_psychosocialhazards_web.pdf
- Department of Mines, Industry Regulation and Safety (2022a). *Regulations on psychosocial hazards*. <https://www.commerce.wa.gov.au/announcements/regulations-psychosocial-hazards>
- Department of Mines, Industry Regulation and Safety. (2022b). *Controlling psychosocial hazards and risk factors overview*. <https://www.dmp.wa.gov.au/Safety/Controlling-psychosocial-26117.aspx>
- Department of Mines, Industry Regulation and Safety (2022c). *Psychologically safe and healthy workplaces: Risk management toolkit*. <https://www.commerce.wa.gov.au/publications/psychologically-safe-and-healthy-workplaces-risk-management-approach-toolkit>
- Department of Mines, Industry Regulation and Safety. (2023). *Human factors for major hazard facility, petroleum, and geothermal energy operations*. <https://www.commerce.wa.gov.au/worksafe/human-factors-major-hazard-facility-petroleum-and-geothermal-energy-operations>
- De Witt L., & Ploeg, J. (2006) Critical appraisal of rigor in interpretive phenomenological nursing research. *Journal of Advanced Nursing*, 55, 215–229. doi: 10.1111/j.1365-2648.2006.03898.x
- Dickey, H., Watson, V., & Zangelidis, A. (2011). Job satisfaction and quit intentions of offshore workers in the UK North Sea oil and gas industry. *Scottish Journal of Political Economy*, 58(5), 607-633. doi: 10.1111/j.1467-9485.2011.00561.x
- Dickson-Swift, V., Fox, C., Marshall, K., Welch, N., & Willis, J. (2014). What really improves employee health and wellbeing: Findings from regional Australian workplaces. *International Journal of Workplace Health Management*, 7(3), 138-155. doi: 10.1108/IJWHM-10-2012-0026

- Dimoff, J. K., & Kelloway, E. K. (2019). With a little help from my boss: The impact of workplace mental health training on leader behaviors and employee resource utilization. *Journal of Occupational Health Psychology, 24*(1), 4–19. <https://doi.org/10.1037/ocp0000126>
- Dimoff, J. K., Kelloway, E. K., & Burnstein, M. D. (2016). Mental health awareness training (MHAT): The development and evaluation of an intervention for workplace leaders. *International Journal of Stress Management, 23*(2), 167-189. doi: 10.1037/a0039479
- Ding, N., Berry, H. L., & Bennett, C. M. (2016). The importance of humidity in the relationship between heat and population mental health: Evidence from Australia. *PloS One, 11*(10). doi:10.1371/journal.pone.0164190
- DiRenzoa, M. S., Greenhausb, J. H., & Weer, C. H. (2011). Job level, demands, and resources as antecedents of work–family conflict. *Journal of Vocational Behaviour, 78*. 305-314. doi: 10.1016/j.jvb.2010.10.002
- Disability Discrimination Act 1992* [Online]. (1992).
<https://www.legislation.gov.au/Series/C2004A04426>
- Dollard, M. F., Hall, G., LaMontagne, A. D., Taylor, A. W., Winefield, A. H., Smith, P., & Bakker, A. B. (2009), *Australian Workplace Barometer (AWBQ2009)*, Centre for Applied Psychological Research, University of South Australia, Adelaide.
<https://www.safeworkaustralia.gov.au/doc/australian-workplace-barometer-report-psychosocial-safety-climate-and-worker-health-australia>
- Dollard, M. F., & Nesar, D. Y. (2013). Worker health is good for the economy: Union density and psychosocial safety climate as determinants of country differences in worker health and productivity in 31 European countries. *Social Science & Medicine, 92*, 114-123. doi: 10.1016/j.socscimed.2013.04.028
- Douglas, G. L., Cooper, M., Bermudez-Aguirre, D., & Sirmons, T. (2016). *Risk of performance decrement and crew illness due to an inadequate food system*. Houston, TX: NASA.
<https://humanresearchroadmap.nasa.gov/risks/risk.aspx?i=87>
- Downie, M., & Gosling, D. (2020). Offshore helicopter travel: Is the U.K. oil and gas industry failing workers? *NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy, 29*(4), 504-518. doi:10.1177/1048291119887189
- Drost, E. (2011). Validity and reliability in social science research. *Education Research and Perspectives, 38*. 105-124.
https://www.researchgate.net/publication/261473819_Validity_and_Reliability_in_Social_Science_Research

- Duru, Y. B., Gunal, V., Agaoglu, C. Y., & Tatlı, C. (2022). The role of covid-19 anxiety and intolerance of uncertainty in predicting resilience. *Scandinavian Journal of Psychology, 63*, 522–529. doi: 10.1111/sjop.12820
- Education and Health Standing Committee. (2014). *Shining a light on FIFO mental health*. Perth: Parliament of Western Australia.
[https://www.parliament.wa.gov.au/Parliament/commit.nsf/\(InqByName\)/Inquiry+into+mental+health+impacts+of+FIFO+work+arrangements#Report](https://www.parliament.wa.gov.au/Parliament/commit.nsf/(InqByName)/Inquiry+into+mental+health+impacts+of+FIFO+work+arrangements#Report)
- Eggert, S. (2010). Psychosocial factors affecting employees' abilities to return to work. *AAOHN Journal, 58*(2), 51-55. doi: 10.3928/08910162-20100118-01
- Eide, R., Hellesby, O.H., & Gogstad, A.C. (1985). Associations between experiences of environmental factors and health. In O.H. Hellesby (Ed.), *Work Environment Staffjord Field: Work environment, health and safety on a North Sea oil platform*, 317-324.
- Eisenberger, R., Armeli, S., Rexwinkel, B., Lynch, P. D., & Rhoades, L. (2001). Reciprocation of perceived organizational support. *Journal of Applied Psychology, 86*(1), 42-51. doi: 10.1037//0021-9010.86.1.42
- Ek, Å., Runefors, M., & Borell, J. (2014). Relationships between safety culture aspects—A work process to enable interpretation. *Marine Policy, 44*, 179-186. doi: 10.1016/j.marpol.2013.08.024
- Electrical Trades Union of Australia. (2022). *ETU submission to the attorney-general department's review of changes to casual employment laws* (Submission to statutory review, 22 July 2022). <https://www.dewr.gov.au/workplace-relations-australia/consultations/statutory-review-casual-employment-legislation/submission/14853>
- Elenkov, D., Judge, W., & Wright, P. (2005). Strategic leadership and executive innovation influence: An international multi-cluster comparative study. *Strategic Management Journal, 26*(7), 665-682. doi: 10.1002/smj.469
- Elkind, P., Whitford, D, & Burke, D. (2011). An accident waiting to happen. *Fortune, 163*(2), 105-132. <https://fortune.com/2011/01/24/bp-an-accident-waiting-to-happen/>
- Ellis, L. A., Collin, P., Hurley, P. J., Davenport, T. A., Burns, J. M., & Hickie, I. B. (2013). Young men's attitudes and behaviour in relation to mental health and technology: Implications for the development of online mental health services. *BMC Psychiatry, 13*, 119.
<https://doi.org/10.1186/1471-244X-13-119>
- Ely, R. J., & Meyerson, D. E. (2010). An organizational approach to undoing gender: The unlikely case of offshore oil platforms. *Research in Organizational Behavior, 30*, 3-34.
 doi:10.1016/j.riob.2010.09.002

- Erkutlu, H. (2008). The impact of transformational leadership on organizational and leadership effectiveness: The Turkish case. *Journal of Management Development*, 27(7), 708-726. doi: 10.1108/02621710810883616
- Evans, G.W., Stecker, R. (2004). Motivational consequences of environmental stress. *Journal of Environmental Psychology* 24(2), 143-165. doi: 10.1016/S0272-4944(03)00076-8
- Evans-Lacko, S., & Knapp, M. (2014). Importance of social and cultural factors for attitudes, disclosure and time off work for depression: Findings from a seven country European study on depression in the workplace. *PLoS One*, 9(3). doi: 10.1371/journal.pone.0091053
- Eysenck, H. J. (1962). The personality of drivers and pedestrians. *Medicine, Science and the Law*, 3, 416-423.
- Fair Work Act 2009* (Cwlth) s70. http://www6.austlii.edu.au/cgi-bin/viewdb/au/legis/cth/consol_act/fwa2009114/
- Fair Work Commission. (2022). *General protections benchbook*. <https://www.fwc.gov.au/benchbook/general-protections-benchbook>
- Fair Work Ombudsman. (2023). *Casual employment information statement* [Fact sheet]. <https://www.fairwork.gov.au/employment-conditions/national-employment-standards/casual-employment-information-statement>
- Felfe, J., & Schyns, B. (2006). Personality and the perception of transformational leadership: The impact of extraversion, neuroticism, personal need for structure, and occupational self-efficacy. *Journal of Applied Social Psychology*, 36(3), 708–739. doi: 10.1111/j.00219029.2006.00026.x
- Felfe, J. & Schyns, B. (2010). Followers' personality and the perception of transformational leadership: Further evidence for the similarity hypothesis. *British Journal of Management*, 21(2), 393-410 doi: 10.1111/j.1467-8551.2009.00649.x
- Felps, W., Mitchell, T. R., & Byington, E. (2006). How, when, and why bad apples spoil the barrel: Negative group members and dysfunctional groups. *Research in Organizational Behavior*, 27, 175-222. [http://dx.doi.org/10.1016/S0191-3085\(06\)27005-9](http://dx.doi.org/10.1016/S0191-3085(06)27005-9)
- Feringa, A., & Wentzel, N. (2020). Smashing the stigma in mental health—a strategic blueprint for change. *The APPEA Journal*, 60(1), 10-18. <https://www.publish.csiro.au/aj/AJ19209>
- Figueiro, M. G., Steverson, B., Heerwagen, J., Kampschroer, K., Hunter, C. M., Gonzales, K., Plitnick, B., & Rea, M. S. (2017). The impact of daytime light exposures on sleep and mood in office workers. *Sleep Health*, 3(3), 204-215. <https://doi.org/10.1016/j.sleh.2017.03.005>
- Finlay, L. (2011). *Phenomenology for therapists: Researching the lived world*. Wiley-Blackwell.
- Fisher, J. R., Tran, T. D., Hammarberg, K., Sastry, J., Nguyen, H., Rowe, H., Popplestone, S., Stocker, R., Stubber, C., & Kirkman, M. (2020). Mental health of people in Australia in the

- first month of COVID-19 restrictions: A national survey. *Medical Journal of Australia*, 213(10), 458-464. doi: 10.5694/mja2.50831
- Fleming, M., Flin, R., Mearns, K., & Gordon, R. (1996). Risk perceptions of offshore workers on UK oil and gas platforms. *Risk Analysis*, 18(1), 103-110. doi: 10.1111/j.1539-6924.1998.tb00920.x
- Flick, U. (2007). *Managing quality in qualitative research*. SAGE Publications.
<https://www.doi.org/10.4135/9781849209441>
- Flin, R., Slaven, G., & Stewart, K. (1997). Emergency decision making in the offshore oil and gas industry. *Human Factors*, 38(2), 262-277. doi: 10.1518/001872096779048110
- Florez, L., Armstrong, P., & Cortissoz, J. C. (2020). Does compatibility of personality affect productivity? Exploratory study with construction crews. *Journal of Management in Engineering*, 36(5). doi: 10.1061/(ASCE)ME.1943-5479.0000807
- Flynn-Evans, E. E., Mucci, L., Stevens, R. G., & Lockley, S. W. (2013). Shiftwork and prostate-specific antigen in the National Health and Nutrition Examination Survey. *Journal of the National Cancer Institute*, 105(17):1292–7. doi: 10.1093/jnci/djt169
- Folkard, S., & Lombardi, D. A. (2006). Modeling the impact of the components of long work hours on injuries and “accidents”. *American Journal of Independent Medicine*, 49(11), 953–963.
<https://doi.org/10.1002/ajim.20307>.
- Fossum, I. N., Bjorvatn, B., Waage, S., & Pallesen, S. (2013). Effects of shift and night work in the offshore petroleum industry: A systematic review. *Industrial Health*, 51, 530–544. doi: 10.2486/indhealth.2013-0054
- Gaiser, T. J. (2008). Online focus groups. In N. Fielding, R. M. Lee & G. Blank (Eds.), *The Sage handbook of online research methods* (pp. 290–307). SAGE Publications, Ltd.
<https://www.doi.org/10.4135/9780857020055>
- Galdas, P. (2017). Revisiting bias in qualitative research: Reflections on its relationship with funding and impact. *International Journal of Qualitative Methods*, 16, 1-2.
<https://doi.org/10.1177/1609406917748992>
- Ganesan, S., Magee, M., Stone, J. E., Mulhall, M. D., Collins, A., Howard, M. E., Lockley, S. W., Rajaratnam, S. M. W., & Sletten, T. L. (2019). The impact of shift work on sleep, alertness and performance in healthcare workers. *Scientific Reports*, 9(1), 4635-4635.
<https://doi.org/10.1038/s41598-019-40914-x>
- Gao, Y., Gonzalez, A., & Yin, T. W. (2020). Exploring the relationship between construction workers’ personality traits and safety behaviour. *Journal of Construction Engineering and Management*, 146(3). [https://ascelibrary-org.dbgw.lis.curtin.edu.au/doi/full/10.1061/%28ASCE%29CO.1943-7862.0001763](https://ascelibrary.org.dbgw.lis.curtin.edu.au/doi/full/10.1061/%28ASCE%29CO.1943-7862.0001763)

- Gardner, R. (2003). Overview and characteristics of some occupational exposures and health risks on offshore oil and gas installations. *Annals of Occupational Hygiene*, 47(3), 201-210. doi: 10.1093/annhyg/meg028
- Gardner, B., Kristie-Lee Alfrey, Vandelanotte, C., & Rebar, A. L. (2018). Mental health and well-being concerns of fly-in fly-out workers and their partners in Australia: A qualitative study. *BMJ Open*, 8(3). doi: 10.1136/bmjopen-2017-019516
- Gasibat, Q. bin Simbak, N. & Abd Aziz, A. (2017). Stretching exercises to prevent work-related musculoskeletal disorders – A review article. *American Journal of Sports Science and Medicine*, 5(2), 27-37. doi: 10.12691/ajssm-5-2-3.
- Gayed, A., Milligan-Saville, J. S., Nicholas, J., Bryan, B. T., Lamontagne, A. D., Milner, A., Madan, I., Calvo, R. A., Christensen, H., Mykletun, A., Glozier, N., & Harvey, S. B. (2018). Effectiveness of training workplace managers to understand and support the mental health needs of employees: A systematic review and meta-analysis. *Occupational and Environmental Medicine*, 75, 462–70. doi: 10.1136/oemed-2017-104789
- Geiger-Brown, J., Rogers, V. E., Trinkoff, A. M., Kane, R. L., Barker Bausell, R., & Scharf, S. M. (2012). Sleep, sleepiness, fatigue, and performance of 12-hour-shift nurses. *Chronobiology International*, 29(2), 211-219. <https://doi.org/10.3109/07420528.2011.645752>
- George, B. (2003). *Authentic leadership: Rediscovering the secrets to creating lasting value*. Jossey-Bass.
- Gillen, M., Baltz, D., Gassel, M., Kirsch, L., & Vaccaro, D. (2002). Perceived safety climate, job demands, and co-worker support among union and non-union injured construction workers. *Journal of Safety Research* 33, 33–51. doi: 10.1016/s0022-4375(02)00002-6
- Gilfillan, G. (2020). *COVID-19: Impacts on Casual Workers in Australia: A Statistical Snapshot*. Research Paper Series, 2019–20, Parliamentary of Australia. https://parlinfo.aph.gov.au/parlInfo/download/library/prspub/7262636/upload_binary/7262636.pdf.
- Gini, A. (1998). Work, identity and self: How we are formed by the work we do. *Journal of Business Ethics*, 17(7), 707-714. doi: 10.1023/A:1017967009252
- Goel, N., Rao, H., Durmer, J. S., & Dinges, D. F. (2009). Neurocognitive consequences of sleep deprivation. *Seminars in Neurology*, 29, 320–39. doi: 10.1055/s-0029-1237117
- Golan, M., Bacharach, Y., & Bamberger, P. (2010). Peer assistance programs in the workplace. *Contemporary Occupational Health Psychology: Global Perspectives on Research and Practice*, 1, 169-187. <http://dx.doi.org/10.1002/9780470661550.ch9>

- Goleman, D. (2000). *Leadership that gets results (Harvard business review classics)*. Harvard Business Press.
- Granger, B. (2000). The role of psychiatric rehabilitation practitioners in assisting people in understanding how to best assert their ADA rights and arrange job accommodations. *Psychiatric Rehabilitation Journal*, 23(3), 215. doi: 10.1037/h0095165
- Grazier, K. L. (2019). The economic impact of depression in the workplace. In M. B. Riba, S. V. Parikh & J. F. Greden (Eds.), *Mental health in the workplace: Strategies and tools to optimize outcomes* (pp. 17-26). Springer. doi: 10.1007/978-3-030-04266-0_1
- Greden, J. F., Garcia-Tosi, R., & Harrington, A. W. (2019). Healthy minds at work: Challenges and strategies for businesses. In M. B. Riba, S. V. Parikh & J. F. Greden (Eds.), *Mental health in the workplace: Strategies and tools to optimize outcomes* (pp. 1-16). Springer. doi: 10.1007/978-3-030-04266-0_1
- Green, F., Machin, S., & Wilkinson, D. (1998). The meaning and determinants of skills shortages. *Oxford Bulletin of Economics and Statistics*, 60(2), 165–87. doi: 10.1111/1468-0084.00093
- Greenberg, L., & Barling, J. (1999). Predicting employee aggression against coworkers, subordinates and supervisors: The roles of person behaviors and perceived workplace factors. *Journal of Organizational Behavior*, 20, 897-913. doi: 10.1002/(SICI)1099-1379(199911)20:6<897::AID-JOB975>3.0.CO;2-Z
- Greenwood, M., Kendrick, T., Davies, H., & Gill, F. J. (2017). Hearing voices: Comparing two methods for analysis of focus group data. *Applied Nursing Research*, 35, 90-93. doi: 10.1016/j.apnr.2017.02.024
- Groves, R. M., Fowler, F. J., Couper, M. P., Lepkowski, J. M., Singer, E., & Tourangeau, R. (2009). *Survey methodology* (2nd ed.). Wiley.
- Guo, J-L. & Liang, G-S. (2012). Sailing into rough seas: Taiwan's women seafarers' career development struggle. *Women's Studies International Forum*, 35(4), 194–202. <https://doi.org/10.1016/j.wsif.2012.03.016>
- Hahn, M. H., McVicar, D., & Wooden, M. (2021). Is casual employment in Australia bad for workers' health? *Occupational & Environmental Medicine*, 78, 15–21. doi: 10.1136/oemed-2020-106568
- Hampton, D., Tharp-Barrie, K., & Kay Rayens, M. (2019). Experience of nursing leaders with workplace bullying and how to best cope. *Journal of Nursing Management*, 27(3), 517-526. doi: 10.1111/jonm.12706
- Harris, A., Waage, S., Ursin, H., Hansen, A. M., Bjorvatn, B., & Eriksen, H. R. (2010). Cortisol, reaction time test and health among offshore shift workers. *Psychoneuroendocrinology*, 35(9), 1339–1347. <https://doi.org/10.1016/j.psyneuen.2010.03.006>

- Harris, J. (2016). *The management of risk factors associated with FIFO workers' mental ill-health*. Queensland Mining Industry Health & Safety Conference, 14-16 August 2016. Gold Coast, QLD.
- Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1993). Emotional contagion. *Current Directions in Psychological Science*, 2(3), 96-100. <https://journals.sagepub.com/doi/pdf/10.1111/1467-8721.ep10770953>
- Håvold, J. J. (2015). Stress on the bridge of offshore vessels: Examples from the North Sea. *Safety Science*, 71, 160–166. <https://doi.org/10.1016/j.ssci.2014.03.009>.
- Haward, B. M., Lewis, C. H., & Griffin, M. J. (2009). Motions and crew response on an offshore oil production and storage vessel. *Applied Ergonomics*, 40 (5), 904-914. doi: 10.1016/j.apergo.2009.01.001
- Heads Up. (n.d.). *Pros and cons tool*. <https://www.headsup.org.au/your-mental-health/talking-about-a-mental-health-condition-at-work/disclosure-tool>
- Hennig, J., Kieferdorf, P., Moritz, C., Huwe, S., & Netter, P. (1998). Changes in cortisol secretion during shiftwork: Implications for tolerance to shiftwork? *Ergonomics*, 41, 610–621. doi: 10.1080/001401398186784
- Henning, J. B., Stufft, C. J., Payne, S. C., Bergman, M. E., Mannan, M. S., & Keren, N. (2009). The influence of individual differences on organizational safety attitudes. *Safety Science*, 47, 337–345. doi:10.1016/j.ssci.2008.05.003
- Henry, P., Hamilton, K., Watson, S., & McDonald, M. (2013). FIFO/DIDO mental health research report 2013. *Perth: Lifeline*. <https://mates.org.au/media/documents/FIFO-DIDO-Mental-Health-Research-Report-2013.pdf>
- Hersey, P., Blanchard, K. H. & Natemeyer, W. E. (1979). Situational leadership, perception, and the impact of power. *Group & Organization Studies*, 4(4), 418-428. doi: 10.1177/105960117900400404
- Herscovis, M. S., & Barling, J. (2007). Towards a relational model of workplace aggression. In J. Langan-Fox, C. L. Cooper, & R. J. Klimoski (Eds.), *Research companion to the dysfunctional workplace: Management challenges and symptoms* (pp. 268–284). Edward Elgar Publishing Ltd. doi: 10.4337/9781847207081.00024
- Hetland, H., Sandal, G. M., & Johnsen, T. B. (2008). Followers' personality and leadership. *Journal of Leadership & Organizational Studies*, 14(4), 322-331. doi: 10.1177/1548051808315550
- Høivik, D., Tharaldsen, J. E., Baste, V., & Moen, B. E. (2009). What is most important for safety climate: The company belonging or the local working environment? A study from the Norwegian offshore industry. *Safety Science*, 47, 1324–1331. doi: 10.1016/j.ssci.2009.04.001

- Hom, M. A., Stanley, I. H., & Joiner, T. E. (2015). Evaluating factors and interventions that influence help-seeking and mental health service utilization among suicidal individuals: A review of the literature. *Clinical Psychology Review, 40*, 28–39. doi: 10.1016/j.cpr.2015.05.006
- Hope, S., Øverland, S., Brun, W., & Matthiesen, S. B. (2010). Associations between sleep, risk and safety climate: A study of offshore personnel on the Norwegian continental shelf. *Safety Science, 48*, 469–477. doi: 10.1016/j.ssci.2009.12.006
- Hopkins, A. (2006). What are we to make of safe behaviour programs? *Safety Science, 44*(7), 583–597. <http://dx.doi.org/10.1016/j.ssci.2006.01.001>
- Howell, A. (2017). Engagement starts at the top: The role of a leader's personality on employee engagement. *Strategic HR Review, 16*(3), 144–146. <https://doi.org/10.1108/SHR-03-2017-0017>
- Hughes, D., & Fairley, A. (2021). The COVID chronicles: An employee assistance program's observations and responses to the pandemic. *Journal of Workplace Behavioral Health, 36*(3), 177–196. doi: 10.1080/15555240.2020.1844569
- Hunt, M. G., Marx, R., Lipson, C., & Young, J. (2018). No more FOMO: Limiting social media decreases loneliness and depression. *Journal of Social and Clinical Psychology, 37*(10), 751–768. <https://guilfordjournals.com/doi/pdf/10.1521/jscp.2018.37.10.751>
- Hunter, J. B., Emanuel, J., & Drysdale, A. E. (2003). *Food service and food system logistics at the South Pole: Lessons for a Lunar/Martian planetary surface mission*. SAE Technical Papers; 2003-01-2365. <https://www.sae.org/publications/technical-papers/content/2003-01-2365/>
- Hursh, S. R., Raslear, T. G., Kaye, A. S., & Fanzone, J. (2006). *Validation and calibration of a fatigue assessment tool for railroad work schedules, summary report* (No. DOT/FRA/ORD-06/21). United States. Department of Transportation. Federal Railroad Administration. Office of Research and Development. https://www.researchgate.net/publication/234082087_Validation_and_Calibration_of_a_Fatigue_Assessment_Tool_for_Railroad_Work_Schedules_Final_Report
- Hystada, S. W., Bartonea, P. T., & Eid, J. (2013). Positive organizational behavior and safety in the offshore oil industry: Exploring the determinants of positive safety climate. *The Journal of Positive Psychology, 9*(1), 42–53. doi: 10.1080/17439760.2013.831467
- Iijima, S., Yokoyama, K., Kitamura, F., Fukuda, T., & Inaba, R. (2013). Cost-benefit analysis of comprehensive mental health prevention programs in Japanese workplaces: A pilot study. *Industrial Health, 51*(6), 627–633. doi: 10.2486/indhealth.2013-0037

- Ikegami, K., Ogyu, S., Arakomo, Y., Suzuki, K., Mafune, K., Hiro, H., & Nagata, S. (2009). Recovery of cognitive performance and fatigue after one night of sleep deprivation. *Journal of Occupational Health, 51*(5), 412–422. <https://doi.org/10.1539/joh.l8127>
- Inness, M., Turner, N., Barling, J., & Stride, C.B. (2010). Transformational leadership and employee safety performance: A within-person, between-jobs design. *Journal of Occupational Health Psychology, 15*(3), 279–290. doi:10.1037/a0019380.
- International Labour Organisation. (2004). *Economic security for a better world, ILO socio-economic security programme*. International Labour Office.
<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjV9Jipx7L9AhUk2XMBHar3C-UQFnoECBEQAQ&url=https%3A%2F%2Fwww.social-protection.org%2Fgimi%2Fgess%2FressourcePDF.action%3Fressource.ressourceId%3D8670&usg=AOvVaw1OrL8eAlFtrK12uV3AA9r3>
- International Organization for Standardization. (2021). *Occupational health and safety management — Psychological health and safety at work — Guidelines for managing psychosocial risks*. (ISO Standard No. 45003:2021).
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiq8dTj8eT9AhXXhVYBHeZ_CS8QFnoECEYQAQ&url=https%3A%2F%2Fcdn.standards.iteh.ai%2Fsamples%2F64283%2Ffe4f974779483430e884ce15ad9b9cac8%2FISO-FDIS-45003.pdf&usg=AOvVaw3VklLeHKIC6pQBdBx9QJZtk
- Irani-Williams, F., Tribble, L., Rutner, P. S., Campbell, C., McKnight, D. H., & Hardgrave, B. C. (2021). Just let me do my job! Exploring the impact of micromanagement on IT professionals. *ACM SIGMIS Database: The DATABASE for Advances in Information Systems, 52*(3), 77-95. doi: 10.1145/3481629.3481635
- Ismail, N., Kinchin, G., & Edwards, J. (2018) Pilot study, does it really matter? Learning lessons from conducting a pilot study for a qualitative PhD thesis. *International Journal of Social Science Research, 6*(1), 1-17. doi:10.5296/ijssr.v6i1.11720
- James, C., Tynan, R., Roach, D., Leigh, L., Oldmeadow, C., Rahman, M., & Kelly, B. (2018). Correlates of psychological distress among workers in the mining industry in remote Australia: Evidence from a multi-site cross-sectional survey. *PLoS ONE, 13*(12): e0209377. doi:10.1371/journal.pone.0209377
- Jenkins, J. J. (2016). Communicating results: Sharing audit observations is one of the most important tasks auditors perform. *Internal Auditor, 73*(3), 65-68.
<https://link.gale.com/apps/doc/A456275354/AONE?u=anon~9e1268e0&sid=googleScholar&xid=6db48ab4>

- Jepsen, J. R., Zhao, Z., & Van Leeuwen, W. M. A. (2015). Seafarer fatigue: A review of risk factors, consequences for seafarers' health and safety and options for mitigation. *International Maritime Health, 66*(2), 106-117. doi: 10.5603/IMH.2015.0024
- Johnson, R. C., Eatough, E. M., Hammer, L. B., & Truxillo, D. (2019). Home is where the mind is: Family interference with work and safety performance in two high risk industries. *Journal of Vocational Behavior, 110*, 117-130. doi: 10.1016/j.jvb.2018.10.012
- Jones, D. M. (1983). Noise. In R. Hockey (Ed.), *Stress and fatigue in human performance* (pp. 61-95). Wiley.
- Jorm, A. (2000). Mental health literacy: Public knowledge and beliefs about mental disorders. *British Journal of Psychiatry, 177*(5), 396-401. doi:10.1192/bjp.177.5.396
- Judge, T.A. (1993). Does affective disposition moderate the relationship between job satisfaction and voluntary turnover? *Journal of Applied Psychology, 78*, 395-40. doi: 10.1037/0021-9010.78.3.395
- Judge, T. A., & Bono, J. E. (2000). Five-factor model of personality and transformational leadership. *Journal of Applied Psychology, 85*, 751-765. doi: 10.1037/0021-9010.85.5.751
- Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology, 87*, 765-780. doi: 10.1037/0021-9010.87.4.765
- Judge, T. A., & Zapata, C. P. (2015). The person--situation debate revisited: Effect of situation strength and trait activation on the validity of the big five personality traits in predicting job performance. *Academy of Management Journal, 58*(4), 1149–1179. doi: 10.5465/amj.2010.0837
- Kaluza, S., Hauke, A., Starren, A., Drupsteen, L., & Bell, N. (2012). Leadership and occupational safety and health: An expert analysis. *European Agency for Safety and Health at Work–EU-OSHA*. <http://resolver.tudelft.nl/uuid:bf328b7a-7389-46c7-b1c8-a1ed1d1adff6a>
- Kant, L., Skogstad, A., Torsheim, T., & Einarsen, S. (2013). Beware the angry leader: Trait anger and trait anxiety as predictors of petty tyranny. *The Leadership Quarterly, 24*(1), 106-124. doi: 10.1016/j.leaqua.2012.08.005
- Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly, 24*(2), 285–308. doi: 10.2307/2392498
- Karasek, R., & Theorell, T. (1990). *Healthy work: Stress, productivity, and the reconstruction of working life*. Basic Books.
- Kawakami, N., Haratani, T., & Araki, S. (1992). Effects of perceived job stress on depressive symptoms in blue-collar workers of an electrical factory in Japan. *Scandinavian Journal of Work, Environment & Health, 18*(3), 195-200. doi: 10.5271/sjweh.1588

- Keller, T. (1999). Images of the familiar: Individual differences and implicit leadership theories. *The Leadership Quarterly*, *10*(4), 589-607. doi: 10.1016/S1048-9843(99)00033-8
- Keyserling, W. M. (1983). Occupational injuries and work experience. *Journal of Safety Research* *14*, 37–42. doi: 10.1016/0022-4375(83)90005-1
- Khazode, V. V., Maiti, J., & Ray, P. K. (2012). Occupational injury and accident research: A comprehensive review. *Safety Science*, *50*, 1355-1367. doi: 10.1016/j.ssci.2011.12.015
- Kim, J. S., & de La Serre, C. B. (2018). Diet, gut microbiota composition and feeding behavior. *Physiological Behavior*, *192*, 177–181. doi: 10.1016/j.physbeh.2018.03.026
- Kim, J. H., Yoon, J., Bahk, J., & Kim, S. S. (2020). Job insecurity is associated with presenteeism, but not with absenteeism: A study of 19 720 full-time waged workers in South Korea. *Journal of Occupational Health*, *62*(1), e12143. doi: 10.1002/1348-9585.12143
- Kirk, A. K., & Brown, D. F. (2003). Employee assistance programs: A review of the management of stress and wellbeing through workplace counselling and consulting. *Australian Psychologist*, *38*(2), 138–43. doi: 10.1080/00050060310001707137
- Kirsch, P., & Barclay, M. A. (2014). *Big pay cheques not enough to retain FIFO workers. Australian Resources and Investment.*
https://www.academia.edu/download/33725639/Kirsch_2014_pay_cheques_FIFO_workers_ARI_v8no1_114-116.pdf
- Kitada, M., & Langaker, L. (2016). Women seafarers as minority organizational members. *Proceedings of the International Association of Maritime Universities (IAMU), AGA*, 326-333. <https://scholarworks.calstate.edu/concern/publications/00000109p>
- Kitchener, B. A., & Jorm, A. F. (2006), Mental health first aid training: Review of evaluation studies. *Australian and New Zealand Journal of Psychiatry*, *40*, 6-8.
<https://doi.org/10.1111/j.1440-1614.2006.01735.x>
- Kitzinger, J. (1995). Qualitative research. Introducing focus groups. *British Medical Journal*, *311*(7000), 299–302. <https://doi.org/10.1136/bmj.311.7000.299>
- Kleppa, E., Sanne, B., & Tell, G. S. (2008). Working overtime is associated with anxiety and depression: the Hordaland Health Study. *Journal of Occupational and Environmental Medicine*, 658-666. doi: 10.1097/JOM.0b013e3181734330
- Kongsvik, T., Fenstad, J., & Wendelborg, C. (2012). Between a rock and a hard place: Accident and near-miss reporting on offshore service vessels. *Safety Science*, *50*(9), 1839-1846. doi: 10.1016/j.ssci.2012.02.003
- KPMG & Mental Health Australia. (2018). *Investing to save: The economic benefits for Australia of investment in mental health reform.* <https://mhaustralia.org/publication/investing-save-kpmg-and-mental-health-australia-report-may-2018>

- KPMG. (2022). *Review of the Fair Work Amendment (Supporting Australia's jobs and economic recovery) Act 2021 (Cth)*. <https://www.dewr.gov.au/workplace-relations-australia/resources/review-fair-work-amendment-supporting-australias-jobs-and-economic-recovery-act-2021-cth>
- Krohne, K., & Magnussen, L. H. (2011). Go to work or report sick? A focus group study on decisions of sickness presence among offshore catering section workers. *BMC Research Notes*, 4(70). <http://www.biomedcentral.com/1756-0500/4/70>
- Krumpal, I. (2013). Determinants of social desirability bias in sensitive surveys: A literature review. *Quality & Quantity*, 47(4), 2025–2047. doi:10.1007/s11135-011-9640-9
- Kuhn, T. M., Jr. (2001). *The relationship between employee personality traits and preferred leadership style*. [Doctoral dissertation, University of Nevada]. <https://link.library.curtin.edu.au/gw?url=https://www-proquest-com.dbgw.lis.curtin.edu.au/dissertations-theses/relationship-between-employee-personality-traits/docview/304743156/se-2?accountid=10382>
- Kuntz, J. C., Näswall, K., & Malinen, S. (2016). Resilient employees in resilient organizations: Flourishing beyond adversity. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, 9, 456–462. <https://doi.org/10.1017/iop.2016.39>
- Kutcher, S., Wei, Y., & Coniglio, C. (2016). Mental health literacy: Past, present and future. *The Canadian Journal of Psychiatry*, 61(3), 154-158. doi: 10.1177/0706743715616609
- Lackey, N. R., & Wingate, A. L. (1997). The pilot study: One key to research success. In P. J. Brink & M. J. Wood (Eds.), *Advanced design in nursing research* (pp. 375-386). SAGE Publications. doi: 10.4135/9781452204840.n15.
- Lahey, B. (2009). Public health significance of neuroticism. *American Psychologist*, 64, 241-256. <https://doi.org/10.1037/a0015309>
- Lajunen, T. (2001). Personality and accident liability: Are extraversion, neuroticism and psychoticism related to traffic and occupational fatalities? *Personality and Individual Differences*, 31, 1365-1373. doi: 10.1016/S0191-8869(00)00230-0
- Lambert, G. W., Reid, C., Kaye, D. M., Jennings, G. L., & Esler, M. D. (2002). Effect of sunlight and season on serotonin turnover in the brain. *The Lancet*, 360(9348), 1840-1842. doi: 10.1016/S0140-6736(02)11737-5
- Landon, L. B., Douglas, G. L., Downs, M. E., Greene, M. R., Whitmire, A. M., Zwart, S. R., & Roma, P. G. (2019). The behavioral biology of teams: Multidisciplinary contributions to social dynamics in isolated, confined, and extreme environments. *Frontiers in Psychology*, 10, 2571. doi: 10.3389/fpsyg.2019.02571

- Langdon, R. R., Biggs, H. C., & Rowland, B. (2016). Australian fly-in, fly-out operations: Impacts on communities, safety, workers and their families. *Work, 55*(2), 413-427.
<https://content.iospress.com/articles/work/wor2412>
- Lazarus, R. S. (1991). Psychological stress in the workplace. *Journal of Social Behavior and Personality, 6*, 1–13.
- Lee, Y-G., Garza-Gomez, X., & Lee, R. M. (2018). Ultimate costs of the disaster: Seven years after the Deepwater Horizon oil spill. *Journal of Corporate Accounting & Finance, 29*(1), 69-79.
 doi: 10.1002/jcaf.22306
- Leininger, M. (1985). *Qualitative Research Methods in Nursing*. Grune & Stratton. doi: 10.7748/nr.24.2.8.s5
- Lester, D. (2000). National differences in neuroticism and extraversion. *Personality and Individual Differences, 28*, 35-39. doi: 10.1016/S0191-8869(99)00072-0
- Leung, A. K-Y., Liou, S., Qiu, L., Kwan, L. Y-Y., Chiu, C-Y., & Yong, J. C. (2014). The role of instrumental emotion regulation in the emotions–creativity link: How worries render individuals with high neuroticism more creative. *Emotion, 14*(5), 846–856. doi: 10.1037/a0036965
- Liamputtong, P. (2011). *Focus group methodology: Principles and practice* (pp. 149-164). SAGE Publications Ltd. <https://www.doi.org/10.4135/9781473957657>
- Liang, F., & Cao, L. (2021). Linking employee resilience with organizational resilience: The roles of coping mechanism and managerial resilience. *Psychology Research and Behavior Management, 14*, 1063–1075. <https://doi.org/10.2147/PRBM.S318632>
- Lim, J., & Dinges, D. F. (2008). Sleep deprivation and vigilant attention. *Annals of the New York Academy of Sciences, 1129*(1), 305–22. doi: 10.1196/annals.1417.002
- Lippel, K. (2012). Preserving workers' dignity in workers' compensation systems: An international perspective. *American Journal of Industrial Medicine, 55*(6), 519-536. doi: 10.1002/ajim.22022
- Ljoså, C., Tyssen, R., & Lau, B. (2011). Mental distress among shift workers in Norwegian offshore petroleum industry — relative influence of individual and psychosocial work factors. *Scandinavian Journal of Work, Environment & Health, 37*(6), 551-555.
<http://www.jstor.org/stable/23064891>
- Lohaus, D. & Habermann, W. (2019). Presenteeism: A review and research directions. *Human Resource Management Review, 29*(1), 43–58. doi: 10.1016/j.hrmmr.2018.02.010
- Long, C. R., & Averill, J. R. (2003). Solitude: An exploration of benefits of being alone. *Journal for the Theory of Social Behaviour, 33*(1), 21-44. doi: 10.1111/1468-5914.00204

- Long, T., & Johnson, M. (2000). Rigour, reliability and validity in qualitative research. *Clinical Effectiveness in Nursing*, 4(1), 30-37. doi:10.1054/cein.2000.0106.
<https://doi.org/10.1054/cein.2000.0106>
- Lopez-Perry, C. (2020) Transformational leadership and the big five personality traits of counselor educators. *Journal of Counselor Leadership and Advocacy*, 7(2), 132-146. doi: 10.1080/2326716X.2020.1820406
- Luthans, F. & Avolio, B. J. (2003). Authentic leadership development. In J. E. Dutton & R. E. Quinn (Eds.), *Positive Organizational Scholarship* (pp. 241-261), Berrett-Koehler.
- Luthans, F., Vogelgesang, G. R., & Lester, P. B. (2006). Developing the psychological capital of resiliency. *Human Resource Development Review*, 5, 25–44.
<https://doi.org/10.1177/1534484305285335>
- Maher, B. (2019). RU OK?: The role of community in suicide prevention. In M. Withers & J. McCool (Eds.), *Global health leadership: Case studies from the Asia-Pacific* (pp. 79-90), Springer.
- Maisey, G., Cattani, M., Devine, A., Lo, J., Fu, S. C., & Dunican, I. C. (2022) Digging for data: How sleep is losing out to roster design, sleep disorders, and lifestyle factors. *Applied Ergonomics*, 99, 103617. <https://doi.org/10.1016/j.apergo.2021.103617>
- Malmqvist, J., Hellberg, K., Möllås, G., Rose, R., & Shevlin, M. (2019). Conducting the pilot study: A neglected part of the research process? Methodological findings supporting the importance of piloting in qualitative research studies. *International Journal of Qualitative Methods*, 18. <https://doi.org/10.1177/1609406919878341>
- Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. *FQS Forum: Qualitative Social Research*, 11(3), 1-13. <http://www.qualitative-research.net/index.php/fqs/article/view/1428/3027.%20%20%20%20%5BAccessed>
- Mathisen, G. E., Tjora, T., & Bergh, L. I. V. (2022). Speaking up about safety concerns in high-risk industries: Correlates of safety voice in the offshore oil rig sector. *Safety science*, 145, 105487. <https://doi.org/10.1016/j.ssci.2021.105487>
- Matthews, L. R., Gerald, J., & Jessup, G. M. (2021). Exploring men’s use of mental health support offered by an Australian employee assistance program (EAP): Perspectives from a focus-group study with males working in blue- and white-collar industries. *International Journal of Mental Health Systems*, 15(68), 1-17. doi: 10.1186/s13033-021-00489-5
- Mattke, S., Balakrishnan, A., Bergamo, G., & Newberry, S. J. (2007). A review of methods to measure health-related productivity loss. *American Journal of Managed Care*, 13(4), 211-217. <https://www.crestclean.co.nz/wp-content/uploads/2015/11/Health-Related-Productivity-Loss.pdf>

- McCabe, D. (2007). Individualization at work?: Subjectivity, teamworking and anti-unionism. *Organization, 14*(2), 243-266. doi: 10.1177/1350508407074227
- McCarthy, G., Almeida, S., & Ahrens, J. (2011). Understanding employee well-being practices in Australian organizations. *The International Journal of Health Wellness and Society, 1*(1), 181-198. doi: 10.18848/2156-8960/CGP/v01i01/41076
- McCrae, R. R., & Costa, P. T., Jr. (1986). Personality, coping, and coping effectiveness in an adult sample. *Journal of Personality, 54*, 385-405. doi: 10.1111/j.1467-6494.1986.tb00401.x
- McCrae, R. R., & Costa, P. T., Jr. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*, 81–90. doi:10.1037/0022-3514.52.1.81
- McCrae, R. R. & Costa, P. T., Jr. (1994). The stability of personality: Observation and evaluations. *Current Directions in Psychological Science, 3*(6), 173–5. doi: 10.1111/1467-8721.ep10770693
- McCrae, R. R. and Costa, P.T., Jr. (1999). A five-factor theory of personality. In O.P. John, R.W. Robins & L. Pervin (Eds.), *Handbook of personality: Theory and research* (pp. 159-182). Guilford Press.
- McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality, 60*(2), 175–215. doi: 10.1111/j.1467-6494.1992.tb00970.x
- McKenzie, S. K., Collings, S., Jenkin, G., & River, J. (2018). Masculinity, social connectedness, and mental health: Men’s diverse patterns of practice. *American Journal of Men's Health, 12*(5), 1247-1261.
- McKinlay, N. G. (2018). Long working hours, social psychological stressors, and poor health: The effect of flexible employment contracts on workers' physical and psychological health. *American Journal of Medical Research, 5*(2), 64-69. <http://dx.doi.org/10.22381/AJMR5220189>
- McNamara, R., & Smith, A. P. (2020). Combined effects of fatigue indicators on the health and wellbeing of workers in the offshore oil industry. *Journal of Health and Medical Sciences, 3*(3), 270-276. doi: 10.31014/aior.1994.03.03.122
- McVeigh, J., MacLachlan, M., Cox, H., Stilz, I. R., Fraser, A., Galligan, M., & Ó Meachair, S. (2021). Effects of an on-board psychosocial programme on stress, resilience, and job satisfaction amongst a sample of merchant seafarers. *International Maritime Health, 72*(4), 268-282. <https://doi.org/10.5603/IMH.2021.0051>
- Mead, M. N. (2008). Benefits of sunlight: A bright spot for human health. *Environmental Health Perspectives, 116*(4), A160–A167. <https://doi.org/10.1289/ehp.116-a160>

- Mearns, K. J., & Flin, R. (1995). Risk perception and attitudes to safety by personnel in the offshore oil and gas industry: A review. *Journal of Loss Prevention in the Process Industries*, 8(5), 299–305. doi: 10.1016/0950-4230(95)00032-v
- Mearns, K. J., & Flin, R., (1999). Assessing the state of organizational safety – culture or climate? *Current Psychology* 18, 5–17. doi: 10.1007/s12144-999-1013-3
- Merkus, S. L., Huysmans, M. A., Holtea, K. A., van Mechelen, W., & van der Beek, A. J. (2017). An active transition from offshore work to family life: Activities that may impact recovery. *Work*, 58, 371-381. doi: 10.3233/WOR-172631
- Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative Research: A Guide to Design and Implementation* (4th ed.). Jossey-Bass.
http://link.library.curtin.edu.au/p?pid=CUR_ALMA51146422710001951
- Mette, J., Robelski, S., Kirchhöfer, M., Harth, V., & Mache, S. (2019). Living the 14/14 schedule: Qualitative analysis of the challenges and coping strategies among families of offshore wind workers. *International Journal of Environmental Research and Public Health*, 16(2). doi: 10.3390/ijerph16020241
- Mette, J., Velasco Garrido, M., Harth, V. Preisser, A. M., & Mache, S. (2017). “It’s still a great adventure” – exploring offshore employees’ working conditions in a qualitative study. *Journal of Occupational Medicine and Toxicology*, 12(35). doi: 10.1186/s12995-017-0179-0
- Mette, J., Velasco Garrido, M., Harth, V. Preisser, A. M., & Mache, S. (2018a). Healthy offshore workforce? A qualitative study on offshore wind employees’ occupational strain, health, and coping. *BMC Public Health*, 18(1), 172. doi: 10.1186/s12889-018-5079-4
- Mette, J., Velasco Garrido, M., Preisser, A. M., Harth, V., & Mache, S. (2018b). Linking quantitative demands to offshore wind workers' stress: Do personal and job resources matter? A structural equation modelling approach. *BMC Public Health*, 18(1), 934. doi: 10.1186/s12889-018-5808-8
- Meyer, B., Zill, A., Dilba, D., Gerlach, R., & Schumann, S. (2021). Employee psychological well-being during the COVID-19 pandemic in Germany: A longitudinal study of demands, resources, and exhaustion. *International Journal of Psychology*, 56(4), 532-550. doi: 10.1002/ijop.12743
- Miller, S. (2003). Analysis of phenomenological data generated with children as research participants. *Nurse Researcher*, 10, 68–82. doi: 10.7748/nr2003.07.10.4.68.c5908
- Miller, P., Brook, L., Stomski, N. J., Ditchburn, G., & Morrison, P. (2019). Depression, suicide risk, and workplace bullying: A comparative study of fly-in, fly-out and residential resource workers in Australia. *Australian Health Review*, 44(2), 248-253. doi: 10.1071/AH18155

- Milliken, F. J., Morrison, E. W., & Hewlin, P. F. (2003). An exploratory study of employee silence: Issues that employees don't communicate upward and why. *Journal of Management Studies*, 40(6), 1453-1476. doi: 10.1111/1467-6486.00387
- Miraglia, M., & Johns, G. (2016). Going to work ill: A meta-analysis of the correlates of presenteeism and a dual-path model. *Journal of Occupational Health Psychology*, 21(3), 261–283. <https://doi.org/10.1037/ocp0000015>
- Moher D., Liberati, A., Tetzlaff, J., & Altman, D. G., The PRISMA Group (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA Statement. *PLoS Med* 6(6). doi:10.1371/journal.pmed1000097. www.prisma-statement.org.
- Montero-Marín, J., Asún, S., Estrada-Marcén, N., Romero, R., & Asún, R. (2013). Effectiveness of a stretching program on anxiety levels of workers in a logistic platform: A randomized controlled study. *Atencion Primaria*, 45(7), 376–383. <https://doi.org/10.1016/j.aprim.2013.03.002>
- Moore, T. M. (1998). A workplace stretching program: Physiologic and perception measurements before and after participation. *AAOHN Journal*, 46(12), 563-568. doi: 10.1177/216507999804601201
- Moreland, R. L., & Levine, J. M. (2002). Socialization and trust in work groups. *Group Processes and Intergroup Relations*, 5, 185–201. doi: 10.1177/1368430202005003001
- Morse, J. M. (1994). Designing funded qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 220-35). Sage.
- Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*, 1(2), 13-22. doi: 10.1177/160940690200100202
- Mosadeghrad, A. M., Ferlie, E., & Rosenberg, D. (2011). A study of relationship between job stress, quality of working life and turnover intention among hospital employees. *Health Services Management Research*, 24(4), 170-181. doi: 10.1258/hsmr.2011.011009
- Moser, A., & Korstjens, I. (2018). Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. *European Journal of General Practice*, 24(1), 9-18. doi: 10.1080/13814788.2017.1375091
- Moustakas, C. (1994). *Phenomenological research methods*. SAGE Publications, Inc. <https://www.doi.org/10.4135/9781412995658>
- Murphy, K., Strand, L., Theron, L., & Ungar, M. (2021). “I just gotta have tough skin”: Women's experiences working in the oil and gas industry in Canada. *The Extractive Industries and Society*, 8(2), 100882. <https://doi.org/10.1016/j.exis.2021.02.002>

- Murray, P. J. (1997). Using virtual focus groups in qualitative research. *Qualitative Health Research*, 7(4), 542–549. <https://doi.org/10.1177/104973239700700408>
- Murray, M. (2007). Fish harvesters with injuries' accounts of their experiences with the workers' compensation system. *Work*, 28, 47-56. <https://content.iospress.com/articles/work/wor00595>
- Näher, A-F., & Krumpal, I. (2011). Asking sensitive questions: The impact of forgiving wording and question context on social desirability bias. *Quality & Quantity*, 46(5), 1601-1616. doi: 0.1007/s11135-011-9469-2
- Namian, M., Albert, A., & Feng, J. (2018, March). The distracted worker: Effect on hazard recognition and safety performance. In *Construction Research Congress* (pp. 367-377). New Orleans; LA: ASCE. doi: 10.1061/9780784481288.036
- National Academies of Sciences, Engineering, and Medicine. (2018). *The human factors of process safety and worker empowerment in the offshore oil industry: Proceedings of a workshop*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25047>.
- National Energy Resources Australia. (2018). *Preparing Australia's future oil and gas workforce: Three scenarios for workforce change*. https://www.nera.org.au/Attachment?Action=Download&Attachment_id=248
- National Offshore Petroleum Safety and Environmental Management Authority. (2020a). *Notification and reporting of accidents and dangerous occurrences*. <https://www.nopsema.gov.au/assets/Guidance-notes/A160607.pdf>
- National Offshore Petroleum Safety and Environmental Management Authority. (2020b). *COVID-19 roster changes*. <https://www.nopsema.gov.au/offshore-industry/safety/covid-19>
- National Offshore Petroleum Safety and Environmental Management Authority. (2020c). *The safety case in context: An overview of the safety case regime*. <https://www.nopsema.gov.au/document-hub/guidance-notes>
- National Offshore Petroleum Safety and Environmental Management Authority. (2021a). *Psychological risk management*. <https://www.nopsema.gov.au/sites/default/files/documents/2021-09/A757599.pdf>
- National Offshore Petroleum Safety and Environmental Management Authority. (2021b). *Human Factors*. <https://www.nopsema.gov.au/offshore-industry/safety/human-factors>
- Neall, A. M., Li, Y., & Tuckey, M. R. (2021). Organizational justice and workplace bullying: Lessons learned from externally referred complaints and investigations. *Societies*, 11(4), 143. <https://doi.org/10.3390/soc11040143>
- Neis, B., Neil, K., & Lippel, K. (2020, April). *Mobility in a pandemic: COVID-19 and the mobile labour workforce* (Working Paper). <https://www.onthemovepartnership.ca/wp-content/uploads/2020/04/COVID-and-Mobile-Labour-Force-Working-Paper.pdf>

- Niedhammer, I., David, S., & Degioanni, S. (2006). Association between workplace bullying and depressive symptoms in the French working population. *Journal of Psychosomatic Research, 61*(2), 251-259. doi: 10.1016/j.jpsychores.2006.03.051
- Nielsen, M.B. (2013). Bullying in work groups: The impact of leadership. *Scandinavian Journal of Psychology, 54*, 127–136. doi: 10.1111/sjop.12011
- Nielsen, M. B., Glasø, L., Stig, B. M., Eid, J., & Einarsen, S. (2013a). Bullying and risk-perception as health hazards on oil rigs. *Journal of Managerial Psychology, 28*(4), 367-383. doi: 10.1108/JMP-12-2012-0395
- Nielsen, M. B., Mearns, K., Matthiesen, S. B. & Eid, J. (2011). Using the Job Demands–Resources model to investigate risk perception, safety climate and job satisfaction in safety critical organizations. *Scandinavian Journal of Psychology 52*, 465–475. doi: 10.1111/j.1467-9450.2011.00885.x
- Nielsen, M. B., Tvedt, S. D., & Matthiesen, S. B. (2013b). Prevalence and occupational predictors of psychological distress in the offshore petroleum industry: A prospective study. *International Archives of Occupational and Environmental Health, 86*(8). 875-885. doi: 10.1007/s00420-012-0825-x
- Niven, K., & McLeod, R. (2009). Offshore industry: Management of health hazards in the upstream petroleum industry. *Occupational Medicine, 59*, 304–309. doi:10.1093/occmed/kqp076
- Noble, H., & Smith, J. (2015). Issues of validity and reliability in qualitative research. *Evidence-Based Nursing, 18*(2), 34-35. doi: 10.1136/eb-2015-102054
- Obschonka, M., Stuetzer, M., Rentfrow, P. J., Shaw-Taylor, L., Satchell, M., Silbereisen, R. K., Potter, J., & Gosling, S. D. (2018). In the shadow of coal: How large-scale industries contributed to present-day regional differences in personality and well-being. *Journal of Personality and Social Psychology, 115*(5), 903. <https://mpira.ub.uni-muenchen.de/89645/>
- O’Dea, A., & Flin, R. (2001). Site managers and safety leadership in the offshore oil and gas industry. *Safety Science, 37*, 39-57. doi: 10.1016/s0925-7535(00)00049-7
- Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGS Act) (Cth.). http://classic.austlii.edu.au/au/legis/cth/consol_act/opaggsa2006446/
- Oliffe, J. L., & Phillips, M. J. (2008). Men, depression and masculinities: A review and recommendations. *Journal of Men's Health, 5*(3), 194-202. <https://doi.org/10.1016/j.jomh.2008.03.016>
- Oltedal, H. A., & McArthur, D. P. (2011). Reporting practices in merchant shipping, and the identification of influencing factors. *Safety Science, 49*(2), 331-338. doi: 10.1016/j.ssci.2010.09.011

- Österman, C., & Boström, M. (2022). Workplace bullying and harassment at sea: A structured literature review. *Marine Policy*, *136*, 104910. <https://doi.org/10.1016/j.marpol.2021.104910>
- Parkes, K. R. (1986). Coping in stressful episodes: The role of individual differences, environmental factors, and situational characteristics. *Journal of Personality and Social Psychology*, *51*, 1277-1292.
- Parkes, K. R. (1992). Mental health in the oil industry: A comparative study of onshore and offshore employees. *Psychological Medicine*, *22*, 997-1009. doi: 10.1007/s00420-016-1174-y
- Parkes, K. R. (1993). *Human factors, shift work, and alertness in the offshore oil industry*. HM Stationery Office.
- Parkes, K. R. (1998). Psychological aspect of stress, health and safety on North Sea installations. *Scandinavian Journal of Work, Environment & Health*, *24*(5), 321-333. doi: 10.5271/sjweh.352
- Parkes, K. R. (1999). Shiftwork, job type, and the work environment as joint predictors of health-related outcomes. *Journal of Occupational Health Psychology*, *4*, 256–68. doi: 10.1037/1076-8998.4.3.256
- Parkes, K. R. (2002). Age, smoking, and negative affectivity as predictors of sleep patterns among shiftworkers in two environments. *Journal of Occupational Health Psychology*, *7*(2), 156–173. doi: 0.1037//1076-8998.7.2.156
- Parkes, K. R. (2010). Offshore working time in relation to performance, health and safety: A review of current practice and evidence. University of Oxford for the Health and Safety Executive. <https://www.hse.gov.uk/research/rrpdf/rr772.pdf>
- Parkes, K. R. (2011). Accommodation on offshore oil/gas installations. Evidence relating to occupancy levels. doi: 10.13140/RG.2.1.4729.8322
- Parkes, K. R. (2012). Shift schedules on North Sea oil/gas installations: A systematic review of their impact on performance, safety and health. *Safety Science*, *50*, 1636–1651. doi: 10.1016/j.ssci.2012.01.010
- Parkes, K. R. (2015). Shift rotation, overtime, age, and anxiety as predictors of offshore sleep patterns. *Journal of Occupational Health Psychology*, *20*(1), 27–39. <http://dx.doi.org/10.1037/a0038164>
- Parkes, K. R. (2017). Work environment, overtime and sleep among offshore personnel. *Accident and Analysis Prevention*, *99*, 383-388. doi: 10.1016/j.aap.2015.11.022
- Parkes, K. R., Carnell, S. C., & Farmer, E. L. (2005). ‘Living two lives’: Perceptions, attitudes and experiences of spouses of UK offshore workers. *Community, Work & Family*, *8*(4), 413-437. doi: 10.1080/13668800500251755

- Parkes, K. R., & Swash, S. (2000). *Injuries on offshore oil and gas installations: An analysis of temporal and occupational factors*, HSE Contract Research Report OTO 1999-097.
https://www.researchgate.net/profile/Katharine-Parkes/publication/235974692_Injuries_on_offshore_oil_and_gas_installations_An_analysis_of_temporal_and_occupational_factors/links/02e7e516bd3652e581000000/Injuries-on-offshore-oil-and-gas-installations-An-analysis-of-temporal-and-occupational-factors.pdf
- Parker, S. K., Fruhen, L., Burton, C., McQuade, S., Loveny, J., Griffin, M., Page, A., Chikritzhs, T., Crock, S., Jorritsma, K., & Esmond, J. (2018). *Impact of FIFO work arrangements on the mental health and wellbeing of FIFO workers*. Centre for Transformative Work Design.
<https://research-repository.uwa.edu.au/en/publications/impact-of-fifo-work-arrangements-on-the-mental-health-and-wellbei>
- Parker, S. K., Morgeson, F. P., & Johns, G. C. (2017). One hundred years of work design research: Looking back and looking forward. *Journal of Applied Psychology, 102*(3), 403-420. doi: 10.1037/ap10000106
- Parliament of Western Australia (2014). *Migration Amendment (Offshore Resources Activity) Repeal Bill*.
https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bId=r5211
- Patton, M. (1990). *Qualitative Evaluation and Research Methods* (2nd ed.). Sage.
http://link.library.curtin.edu.au/p?pid=CUR_ALMA2181124610001951
- Pauksztat, B. (2017). Effects of job demands and social interactions on fatigue in short sea cargo shipping. *Maritime Policy & Management, 44*(5), 623–640. doi: 10.1080/03088839.2017.1298868 <https://doi.org/10.1080/03088839.2017.1298868>
- Pavičić Žeželj, S., Cvijanović Pelozo, O., Mika, F., Stamenković, S., Mahmutović Vranić, S., & Šabanagić Hajrić, S. (2019). Anxiety and depression symptoms among gas and oil industry workers. *Occupational Medicine, 69*(1), 22–27. doi: 10.1093/occmed/kqy170
- Peeters, M. A., Van Tuijl, H. F., Rutte, C. G., & Reymen, I. M. (2006). Personality and team performance: A meta-analysis. *European Journal of Personality, 20*(5), 377-396. doi: 10.1002/per.588
- Penley, J. A., Tomaka, J., & Wiebe, J. S. (2002). The association of coping to physical and psychological health outcomes: A meta-analytic review. *Journal of Behavioral Medicine, 25*(6), 551–603. doi: 10.1023/A:1020641400589
- Pescud, M., Teal, R., Shilton, T., Slevin, T., Ledger, M., Waterworth, P., & Rosenberg, M. (2015). Employers' views on the promotion of workplace health and wellbeing: A qualitative study. *BMC public health, 15*(1), 1-10. doi: 10.1186/s12889-015-2029-2

- Petrochem Carless (2008), "Safety data sheet - Mono Ethylene Glycol", Jan. 2008.
- Pfeifer, L. E., & Vessey, J. A. (2019). Psychological safety on the healthcare team. *Nursing Management*, 50(8), 32–38. <https://doi.org/10.1097/01.NUMA.0000558490.12760.08>
- Pines, A. M., & Keinan, G. (2005). Stress and burnout: The significant difference. *Personality and Individual Differences*, 39(3), 625-635. doi: 10.1016/j.paid.2005.02.009
- Pirotta, J. (2009). An exploration of the experiences of women who FIFO. *The Australian Community Psychologist*, 21, 37–51. [https://groups.psychology.org.au/Assets/Files/ACP-21\(2\)-2009.pdf#page=37](https://groups.psychology.org.au/Assets/Files/ACP-21(2)-2009.pdf#page=37)
- Polit, D. F., & Beck, C. T. (2010). *Essentials of nursing research: Appraising evidence for nursing practice* (7th ed.). Wolters Kluwer Health/Lippincott Williams & Wilkins. http://link.library.curtin.edu.au/p?pid=CUR_ALMA2185360560001951
- Pourmazaherian, M., Baqutayan, S. M. S., & Idrus, D. (2018). The role of the big five personality factors on accident: A case of accidents in construction industries. *Journal of Science, Technology and Innovation Policy*, 3(2). https://www.academia.edu/download/56272700/The_Role_of_the_Big_Five_Personality_Factors_on_Accident_A_Case_of_Accidents_in_Construction_Industries.pdf
- Premji, S. (2018). "It's totally destroyed our life": Exploring the pathways and mechanisms between precarious employment and health and well-being among immigrant men and women in Toronto. *International Journal of Health Services* 48(1), 106-127. doi: 10.1177/0020731417730011
- Prescott, P. A., & Soeken, K. L. (1989). The potential uses of pilot work. *Nursing Research*, 38(1), 60-62. doi: 10.1097/00006199-198901000-00015
- Pricewaterhouse Coopers. (2014). *Creating a mentally healthy workplace: Return on investment analysis*. <https://apo.org.au/node/39705>
- Probst, T., & Brubaker, T. L. (2001). The effects of job insecurity on employee safety outcomes: Cross-sectional and longitudinal explanations. *Journal of Occupational Health Psychology*, 6(2), 139–159. doi: 10.1037/1076-8998.6.2.139
- Productivity Commission (2020). *Mental health inquiry report* (Volume 1 no 95). <https://www.pc.gov.au/inquiries/completed/mental-health/report>
- Pulla, V., Shatte, A., & Warren, S. (2012). *Perspectives on coping and resilience*. (1st ed.) Authors Press.
- Quinlan, M. (2013). Precarity and workplace well-being: A general review. In T. Nichols & P. Armstrong (Eds.), *Safety or profit? International studies in governance, change and the work environment*, (pp. 29-44). Routledge. doi: 10.2190/SOPC1

- Quinn, R. W., Spreitzer, G. M., & Lam, C. F. (2012). Building a sustainable model of human energy in organizations: Exploring the critical role of resources. *Academy of Management Annals*, 6(1), 337–396. doi: 10.1080/19416520.2012.676762
- Rabiee, F. (2004). Focus-group interview and data analysis. *Proceedings of the Nutrition Society*, 63, 655–660. doi:10.1079/PNS2004399
- Rahman, M. S., Colbourne, B., & Khan, F. (2021). Risk-based cost benefit analysis of offshore resource centre to support remote offshore operations in harsh environment. *Reliability Engineering & System Safety*, 207, 107340. doi: 10.1016/j.res.2020.107340
- Ramsook, L. (2018). A methodological approach to hermeneutic phenomenology. *International Journal of Humanities and Social Sciences*, 10(1), 14-24.
https://www.researchgate.net/profile/Leela-Ramsook/publication/323687948_A_Methodological_Approach_to_Hermeneutic_Phenomenology/links/5aa921fbaca272d39cd50403/A-Methodological-Approach-to-Hermeneutic-Phenomenology.pdf
- Randall, W. L., & Phoenix, C. (2009): The problem with truth in qualitative interviews: Reflections from a narrative perspective. *Qualitative Research in Sport and Exercise*, 1(2), 125-140.
<http://dx.doi.org/10.1080/19398440902908993>
- Rau, P., Liao, P., Guo, Z., Zheng, J., & Jing, B. (2020). Personality factors and safety attitudes predict safety behaviour and accidents in elevator workers. *International Journal of Occupational Safety and Ergonomics*, 26(4), 719-727. doi: 10.1080/10803548.2018.1493259
- Richardson, S., Lester, L., & Zhang, G. (2012). Are casual and contract terms of employment hazardous for mental health in Australia? *Journal of Industrial Relations*, 54(5), 557–578.
<https://doi.org/10.1177/0022185612454974>
- Riethmeister, V., Brouwer, S., van der Klink, J., & Bültmann, U. (2016). Work, eat and sleep: Towards a healthy ageing at work program offshore. *BMC Public Health*, 16, 134. doi: 10.1186/s12889-016-2807-5
- Riethmeister, V., Bültmann, U., De Boer, M. R., Gordijn, M., & Brouwer, S. (2018). Examining courses of sleep quality and sleepiness in full 2 weeks on/2 weeks off offshore day shift rotations. *Chronobiology International*, 35(6), 759–772. <https://doi.org/10.1080/07420528.2018.1466794>
- Riethmeister, V., Matthews, R. W., Dawson, D., de Boer, M. R., Brouwer, S., & Bültmann, U. (2019). Time-of-day and days-on-shift predict increased fatigue over two-week offshore day-shifts. *Applied Ergonomics*, 78, 157-163, <https://doi.org/10.1016/j.apergo.2019.02.010>.

- Roberts, B. W. & delVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin*, *126*(1), 3-25. doi: 10.1037/0033-2909.126.1.3
- Robinson, A. M., & Smallman, C. (2013). Workplace injury and voice: A comparison of management and union perceptions. *Work, Employment and Society*, *27*(4), 674-693. doi: 10.1177/0950017012460307
- Robson, C. (1993). *The real-world research – A resource for social scientists and practitioner-researchers*. Blackwell Publications.
- Rodgers, G., Burns, S., & Crawford, G. (2021). “I was able to actually do something useful”: Evaluating the experiences of university students after completing Mental Health First Aid: A mixed-methods study. *Advances in Mental Health*, *19*(1), 40-62. <https://doi.org/10.1080/18387357.2019.1663709>
- Rodrigues, V. F., Fischer, F. M., & Brito, M. J. (2001). Shift work at a modern offshore drilling rig. *Journal of Human Ergology*, *30*, 167-172. doi: 10.11183/jhe1972.30.167
- Rotondo, D. M., Carlson, D. S., & Kincaid, J. F. (2003). Coping with multiple dimensions of work–family conflict. *Personnel Review*, *32*, 275–296. doi: 10.1108/00483480310467606
- Rundmo, T. (1992a). Risk perception and safety on offshore petroleum platforms - Part I: Perception of risk. *Safety Science*, *15*, 39-92. doi: 10.1016/0925-7535(92)90038-2
- Rundmo, T. (1992b). Risk perception and safety on offshore petroleum platforms - Part II: Perceived risk, job stress and accidents. *Safety Science*, *15*, 53-68. doi: 10.1016/0925-7535(92)90038-2
- Rundmo, T. (1994). Associations between safety and contingency measures and occupational accidents on offshore petroleum platforms. *Scandinavian Journal of Work, Environment and Health*, *20*, 128-131. doi: 10.5271/sjweh.1421
- Rundmo, T. (1995). Perceived risk, safety status, and job stress among injured and noninjured employees on offshore petroleum installations. *Journal of Safety Research*, *26*(2), 87-97. doi: 10.1016/0022-4375(95)00008-E
- Rustichini, A., DeYoung, C. G., Anderson, J. E., Burks, S. V. (2016). Toward the integration of personality theory and decision theory in explaining economic behavior: An experimental investigation. *Journal of Behavioral and Experimental Economics*, *64*, 122-137. doi: 10.1016/j.socec.2016.04.019
- Safe Work NSW. (2018a). *Managing relationships and work-related stress: Tip sheet 9*. <https://www.safework.nsw.gov.au/resource-library/mental-health/mental-health-strategy-research/stress-tip-sheets/managing-relationships-and-work-related-stress-tip-sheet-9>

- Safe Work NSW. (2018b). *Recognition and reward minimising work-related stress: Tip sheet 10*.
<https://www.safework.nsw.gov.au/resource-library/mental-health/mental-health-strategy-research/stress-tip-sheets/recognition-and-reward-minimising-work-related-stress-tip-10>
- Safe Work NSW. (2018c). *Managing change and work-related stress: Tip sheet 11*.
<https://www.safework.nsw.gov.au/resource-library/mental-health/mental-health-strategy-research/stress-tip-sheets/managing-change-and-work-related-stress-tip-sheet-11>
- Safe Work Australia. (2019). *Work-related psychosocial health and safety. A systematic approach to meeting your duties. National guidance material*.
<https://www.safeworkaustralia.gov.au/doc/work-related-psychological-health-and-safety-systematic-approach-meeting-your-duties-archived>
- Safe Work Australia. (2021). *Australian workers' compensation statistics 2020-21*.
<https://www.safeworkaustralia.gov.au/doc/australian-workers-compensation-statistics-2020-2021>
- Safe Work Australia. (2022). *Model Code of Practice: Managing psychosocial hazards at work*.
<https://www.safeworkaustralia.gov.au/doc/model-code-practice-managing-psychosocial-hazards-work>
- Safe Work Australia. (2023). *Key work health and safety statistics Australia*.
<https://data.safeworkaustralia.gov.au/insights/key-whs-stats-2023>
- Sager, L., & James, C. (2005). Injured workers' perspectives of their rehabilitation process under the New South Wales workers compensation system. *Australian Occupational Therapy Journal*, 52, 127-135. doi: 10.1111/j.1440-1630.2005.00477.x
- Sahraee, R., & Abdullah, H. B. (2018). Employees' personality preferences and their impact on the relationship between leadership styles and organisational commitment. *Journal of Social Sciences and Humanities*, 26(3), 1925-1939.
https://www.researchgate.net/publication/327981125_Employees%27_Personality_Preferences_and_Their_Impact_on_the_Relationship_between_Leadership_Styles_and_Organisational_Commitment
- Saksvik, I. B., Bjorvatn, B., Harvey, A. G., Waage, S., Harris, A., & Pallesen, S. (2011). Adaptation and readaptation to different shift work schedules measured with sleep diary and actigraphy. *Journal of Occupational Health Psychology*, 16, 331-344. doi: 10.1037/a0022770
- Samaha, E., Lal, S., Samaha, N., & Wyndham, J. (2007). Psychological, lifestyle and coping contributors to chronic fatigue in shift-worker nurses. *Journal of Advanced Nursing*, 59(3), 221-232. doi: 10.1111/j.1365-2648.2007.04338.x

- Sampson, H., & Ellis, N. (2021) Stepping up: The need for proactive employer investment in safeguarding seafarers' mental health and wellbeing. *Maritime Policy & Management*, 48(8), 1069-1081, doi: 10.1080/03088839.2020.1867918
- Sampson, H., Turgo, N., Acejo, I., Ellis, N., & Tang, L. (2019). 'Between a rock and a hard place': The implications of lost autonomy and trust for professionals at sea. *Work, Employment and Society*, 33(4), 648-665. doi: 10.1177/0950017018821284
- Sandelowski, M. (1993). Rigor or rigor mortis: The problem of rigor in qualitative research revisited. *Advances in Nursing Science*, 16, 1–8. doi: 10.1097/00012272-199312000-00002
- SANE Australia. (2014). *The impact of depression at work*. Research Bulletin 18. Melbourne: SANE Australia.
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjZqMDAgp6CAxVAh1YBHQmWCIkQFnoECAkQAQ&url=https%3A%2F%2Fwww.sane.org%2Fimages%2FPDFs%2F1405_info_rb18.pdf&usg=AOvVaw2nZQ5-1He91EAYyUMh4Y0H&opi=89978449
- Saxinger, G. (2021) Rootedness along the way: Meaningful sociality in petroleum and mining mobile worker camps. *Mobilities*, 16(2), 194-211. doi: 10.1080/17450101.2021.1885844
- Sayers, E., Rich, J., Rahman, M. M., Kelly, B., & James, C. (2019). Does help seeking behavior change over time following a workplace mental health intervention in the coal mining industry? *Journal of Occupational and Environmental Medicine*, 61(6), e282-e290.
- Schermerhorn, J. R., Jr. (1997). Situational leadership: Conversations with Paul Hersey. *Mid-American journal of business*, 12(2), 5-11.
<https://journals.sagepub.com/doi/10.1177/107179199900500212?icid=int.sj-abstract.similar-articles.1>
- Seaton, C. L., Bottorff, J. L., Oliffe, J. L., Medhurst, K., & DeLeenheer, D. (2019). Mental health promotion in male-dominated workplaces: Perspectives of male employees and workplace representatives. *Psychology of Men & Masculinities*, 20(4), 541. doi: 10.1037/men0000182
- Shatté, A., Perlman, A., Smith, B., & Lynch, W. D. (2017). The positive effect of resilience on stress and business outcomes in difficult work environments. *Journal of Occupational and Environmental Medicine*, 59(2), 135. doi: 10.1097/JOM.0000000000000914
- Shaw-Mills, S. T. (2015). *Towards the Prevention of long-duration workers compensation claims- Pre-claim intervention and strategy* [Doctoral dissertation, Curtin University].
http://link.library.curtin.edu.au/p?cur_dspspace_dc20.500.11937/172
- Shell Australia Pty Ltd, "Safety Data Sheet – LNG", 800010026019 datasheet, Nov. 2020 [Revised Nov. 2020].

- Shidhaye, R., & Kermode, M. (2013). Stigma and discrimination as a barrier to mental health service utilization in India. *International Health*, 5(1):6–8. doi: 10.1093/inthealth/ihs011
- Shields, M. A., & Ward, M. (2001). Improving nurse retention in the National Health Service in England: The impact of job satisfaction on intentions to quit. *Journal of health economics*, 20(5), 677-701. doi: 10.1016/S0167-6296(01)00092-3
- Shohani, M., Badfar, G., Nasirkandy, M. P., Kaikhavani, S., Rahmati, S., Modmeli, Y., Soleymani, A., & Azami, M. (2018). The effect of yoga on stress, anxiety, and depression in women. *International Journal of Preventive Medicine*, 9. doi: 10.4103/ijpvm.IJPVM_242_16
- Sibbel, A. M. (2010). *Living FIFO: the experiences and psychosocial wellbeing of Western Australian fly-in/fly-out employees and partners*. [Doctoral dissertation, Edith Cowan University].
- Silverman, D. (2011). *Interpreting qualitative data: A guide to the principles of qualitative research* (4th ed.) http://link.library.curtin.edu.au/p?pid=CUR_ALMA21127020770001951
- Skogstad, A., Aasland, M. S., Nielsen, M. B., Hetland, J., Matthiesen, S. B., & Einarsen, S. (2015). The relative effects of constructive, laissez-faire, and tyrannical leadership on subordinate job satisfaction. *Zeitschrift für Psychologie*. doi: 10.1027/2151-2604/a000189
- Skogstad A., Einarsen S., Torsheim T., Aasland, M. S., & Hetland, H. (2007). The destructiveness of laissez-faire leadership behavior. *Journal of Occupational Health Psychology*, 12(1), 80–92. doi: 10.1177/1548051813515302
- Smith, A. (1991). A review of the non-auditory effects of noise on health. *Work & Stress*, 5(1), 49–62. doi: 10.1080/02678379108257002
- Smith, J. A. (2004). Reflecting on the development of interpretative phenomenological analysis and its contribution to qualitative research in psychology. *Qualitative Research in Psychology*, 1, 39–54. doi: 10.1191/1478088704qp004oa
- Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis: Theory, method, and research*. Sage. http://link.library.curtin.edu.au/p?pid=CUR_ALMA21101140930001951
- Smith, J. A., & Osborn, M. (2008). *Interpretative phenomenological analysis*. In J. A. Smith (Ed.), *Qualitative psychology: A practical guide to research methods* (pp. 51–80). Sage Publications, Inc. http://link.library.curtin.edu.au/p?pid=CUR_ALMA21151713410001951
- Sneddon, A. Mearns, K., & Flin, R. (2013). Stress, fatigue, situation awareness and safety in offshore drilling crews. *Safety Science*, 56. 80-88. doi: 10.1016/j.ssci.2012.05.027
- Šolcová, I. P., Šolcová, I., Stuchlíková, I., & Mazehóová, Y. (2016). The story of 520 days on a simulated flight to Mars. *Acta Astronaut*, 126, 178–189. doi: 10.1016/j.actaastro.2016.04.026

- Sonnentag, S., & Fritz, C. (2015). Recovery from job stress: The stressor-detachment model as an integrative framework. *Journal of Organizational Behavior*, 36(S1), S72–S103. doi: 10.1002/job.1924
- Sotiriadou, P., Brouwers, J., & Le, T. A. (2014). Choosing a qualitative data analysis tool: A comparison of NVivo and Leximancer. *Annals of Leisure Research*, 17(2), 218-234. <https://doi.org/10.1080/11745398.2014.902292>
- Stanford, J. (2021). *Shock troops of the pandemic: Casual and insecure work in COVID and beyond*. <https://australiainstitute.org.au/report/shock-troops-of-the-pandemic/>
- Stansfeld, S., & Candy, B. (2006). Psychosocial work environment and mental health—a meta-analytic review. *Scandinavian Journal of Work, Environment & Health*, 32(6), 443-462. doi: 10.5271/sjweh.1050
- Steele, N. M., Rodgers, B., & Fogarty, G. J. (2020). The relationships of experiencing workplace bullying with mental health, affective commitment, and job satisfaction: Application of the job demands control model. *International Journal of Environmental Research and Public Health*, 17(6). doi: [10.3390/ijerph17062151](https://doi.org/10.3390/ijerph17062151)
- Steers, M. N., Wickham, R. E., & Acitelli, L. K. (2014). Seeing everyone else’s highlight reels: How Facebook usage is linked to depressive symptoms. *Journal of Social and Clinical Psychology*, 33, 701–731. <https://doi.org/10.1521/jscp.2014.33.8.701>
- Stewart, D., W., Shamdasani, P. N., & Rook, D. W. (2008). In L. Bickman & D. Rog (Eds.). *The Sage handbook of applied social research methods* (2nd ed., pp. 589-616). SAGE Publications.
- Stocker, D., Keller, A. C., Meier, L. L., Elfering, A., Pfister, I. B., Jacobshagen, N., & Semmer, N. K. (2019). Appreciation by supervisors buffers the impact of work interruptions on well-being longitudinally. *International Journal of Stress Management*, 26(4), 331–343. <https://doi.org/10.1037/str0000111>
- Størseth, F. (2006). Changes at work and employee reactions: Organizational elements, job insecurity, and short-term stress as predictors for employee health and safety. *Scandinavian Journal of Psychology*, 47, 541–550. doi: 10.1111/j.1467-9450.2006.00548.x
- Stratton, E., Einboden, R., Ryan, R., Choi, I., Harvey, S. B., & Glozier, N. (2018). Deciding to disclose a mental health condition in male dominated workplaces: A focus-group study. *Frontiers in Psychiatry*. <https://doi.org/10.3389/fpsy.2018.00684>.
- Streeter, C. C., Whitfield, T. H., Owen, L., Rein, T., Karri, S. K., Yakhkind, A., Perlmutter, R., Prescott, A., Renshaw, P. F., Ciraulo, D. A., & Jensen, J. E. (2010). Effects of yoga versus walking on mood, anxiety, and brain GABA levels: A randomized controlled MRS study.

- The Journal of Alternative and Complementary Medicine*, 16(11), 1145-1152. doi: 10.1089/acm.2010.0007
- Stuster, J. (2016). *Behavioral issues associated with long duration space expeditions: Review and analysis of astronaut journals*. Phase 2 final report. NASA/ TM-2016-218603. https://www.academia.edu/download/53165557/Journals_P2_Final_Report_051916.pdf
- Sutherland, V. J., & Cooper, C. L. (1986). *Man and accidents offshore: The costs of stress among workers on oil and gas rigs*. London, Lloyd's List/Dietsmann.
- Sutherland, V. J., & Cooper, C. L. (1989). Occupational stress in the offshore oil and gas-industry. *International Reviews of Ergonomics*, 3, 183-215.
- Sutherland, K. M., & Flin, R. H. (1989) Stress at sea: A review of working conditions in the offshore oil and fishing industries. *Work & Stress*, 3(3), 269-285. doi: 10.1080/02678378908251563
- Sutherland, V. J., and Cooper, C. L. (1991). Personality, stress and accident involvement in the offshore oil and gas industry. *Personality and Individual Differences*, 12. 195–204. doi:10.1016/0191-8869(91)90103-I
- Sutherland, V.J., & Cooper, C. L. (1996). Stress in the offshore oil and gas exploration and production industries: An organizational approach to stress control. *Stress Medicine*, 12, 27-34. doi:10.1002/(SICI)1099-1700(199601)12:1<27::AID-SMI675>3.0.CO;2-0
- Tamagawa, R., Lobb, B., & Booth, R. (2007). Tolerance of shift work. *Applied Ergonomics*, 38(5), 635-642. doi:10.1016/j.apergo.2006.05.003
- Tashakkori, A., & Teddlie, C. (2010). *Handbook of mixed methods in social & behavioral research*. SAGE Publications.
- Taubman, D. S., Velyvis, V., & Parikh, S. V. (2019) Assessment and treatment of mood and anxiety disorders in the workplace. In M. B. Riba, S. V. Parikh & J. F. Greden (Eds.), *Mental health in the workplace: Strategies and tools to optimize outcomes* (pp. 1-16). Springer. doi: 10.1007/978-3-030-04266-0_1
- Tavanti, M. (2011). Managing toxic leaders: Dysfunctional patterns in organizational leadership and how to deal with them. *Human Resource Management*, 127-136. <https://www.infona.pl/resource/bwmeta1.element.desklight-ef315caf-6826-42af-9ee9-886149cb10a2>
- Taylor Moore, J., Cigularov, K. P., Sampson, J. M., Rosecrance, J. C., & Chen, P. Y. (2013). Construction workers' reasons for not reporting work-related injuries: An exploratory study. *International Journal of Occupational Safety and Ergonomics*, 19(1), 97-105. doi: 10.1080/10803548.2013.11076969

- Tenzer, H., Pudelko, M., & Harzing, A. (2014). The impact of language barriers on trust formation in multinational teams. *Journal of International Business Studies*, 45(5), 508-535.
<https://doi.org/10.1057/jibs.2013.64>
- Tessema, M., and J. Soeters. 2006. Challenges and prospects of HRM in developing countries: Testing the HRM-performance link in the Eritrean Civil Service. *International Journal of Human Resource Management* 17: 105-186. <https://doi.org/10.1080/09585190500366532>
- The Black Dog Institute. (2023). *Workplace Wellbeing*.
<https://www.blackdoginstitute.org.au/resources-support/wellbeing/workplace-wellbeing/>
- The Center for Leadership Studies (2017). *Situational Leadership: Relevant then, relevant now*.
https://www.situational.com/content/uploads/2017/10/FINAL_CLS_History_CaseStudy_Digital.pdf
- Thrive at Work. (n.d.). *Ensure tolerable job demands*.
<https://www.thriveatwork.org.au/framework/prevent/ensure-tolerable-demands/>
- Thrive at Work. (n.d.). *Increase job resources*.
<https://www.thriveatwork.org.au/framework/prevent/increase-job-resources/>
- Thrive at Work. (n.d.). *Injury management*. <https://www.thriveatwork.org.au/resources/injury-management/>
- Theobald, S. (2002). Gendered bodies: Recruitment, management, and occupational health in northern Thailand's electronic factories. *Women & Health*, 35(4), 7–26. doi: 10.1300/j013v35n04_02
- Thermo Fisher Scientific (2014), “Safety Data Sheet – Mercury”, Aug. 2014 [Revised Jan. 2018].
- Thomas, M. A. (2006). Sexual harassment in a residential occupation: The experiences of women seafarers. *Health Education Journal* 65(2), 170–179. doi: 10.1177/001789690606500207
- Thomas, L., MacMillan, J., McColl, E., Hale, C., & Bond, S. (1995). Comparison of focus group and individual interview methodology in examining patient satisfaction with nursing care. *Social Sciences in Health*, 1, 206–219. doi: 10.1080/13645579.2017.1281601
- Thompson, B. J. (2019). Does work-induced fatigue accumulate across three compressed 12-hour shifts in hospital nurses and aides? *PLoS ONE*, 14(2): e0211715.
<https://doi.org/10.1371/journal.pone.0211715>
- Thompson, G. & Glasø, L. (2015). Situational leadership theory: A test from three perspectives. *Leadership & Organization Development Journal*, 36(5), 527-544. doi: 10.1108/LODJ-10-2013-0130
- Thompson, C. A., Poelmans, S. A. Y., Allen, T. D., & Andreassi, J. K. (2007). *On the importance of coping: A model and new directions for research on work and family*. In P. L. Perrewé &

- D. C. Ganster (Eds.), *Research in occupational stress and well-being: Vol. 6. Exploring the work and non-work interface* (pp. 73–113). Elsevier Science/JAI Press.
- Tilley, A. J., Wilkinson, R. T., Warren, P. S. G., Watson, B., & Drud, M. (1982). The sleep and performance of shift workers. *The Journal of the Human Factors and Ergonomics Society*, *24*(6), 629-641. doi: 10.1177/001872088202400601
- Tonkin, K., Malinen, S., Näswall, K., & Kuntz, J. C. (2018). Building employee resilience through wellbeing in organizations. *Human Resource Development Quarterly*, *29*(2), 107- 124. doi: 10.1002/hrdq.21306
- Torkington, A. M., Larkins, S., & Gupta, T. S. (2011). The psychosocial impacts of fly-in fly-out and drive-in drive-out mining on mining employees: A qualitative study. *Australian Journal of Rural Health*, *19*, 135–141. doi: 10.1111/j.1440-1584.2011.01205.x
- Torquati, L., Mielke, G. I., Brown, W. J., Burton, N. W., & Kolbe-Alexander, T. (2019). Shift work and poor mental health: A meta-analysis of longitudinal studies. *American Journal of Public Health*, *109*(11). doi: 10.2105/AJPH.2019.305278
- Toth, K. E., Dewa, C. S. (2014). Employee decision-making about disclosure of a mental disorder at work. *Journal of Occupational Rehabilitation*, *24*, 732–746.
<https://doi.org/10.1007/s10926-014-9504-y>
- Treece, E. W., & Treece, J. W., Jr. (1977). Elements of research in nursing. *Nursing Research*, *26*(3), 239. doi: 10.1097/00006199-197705000-00032
- Tschannen-Moran, M., & Gareis, C. R. (2015). Principals, trust, and cultivating vibrant schools. *Societies*, *5*(2), 256-276. doi: 10.1007/978-3-319-50980-8_8
- Tsutsumi, A. (2011). Development of an evidence-based guideline for supervisor training in promoting mental health: Literature review. *Journal of Occupational Health*, *53*(1), 1-9.
<https://doi.org/10.1539/joh.R10002>
- Tucker, P., Härmä, M., Ojajärvi, A., Kivimäki, M., Leineweber, C., Oksanen, T., Salo, P., & Vahtera, J. (2021). Association of rotating shift work schedules and the use of prescribed sleep medication: A prospective cohort study. *Journal of sleep research*, *30*(6), e13349.
<https://doi.org/10.1111/jsr.13349>
- Turner, B., 1978. *Man Made Disasters*. Butterworth-Heinemann.
- Tynan, R. J., Considine, R., Rich, J. L., Skehan, J., Wiggers, J., Lewin, T. J., James, C., Inder, K., Baker, A. L., Kay-Lambkin, F., Perkins, D., & Kelly, B. J. (2016). Help-seeking for mental health problems by employees in the Australian mining industry. *BMC Health Services Research*, *16*(498). doi 10.1186/s12913-016-1755-1
- Tynan, R. J., James, C., Considine, R., Skehan, J., Gullestrup, J., Lewin, T. J., Wiggers, J., & Kelly, B. J. (2018). Feasibility and acceptability of strategies to address mental health and mental

- ill-health in the Australian coal mining industry. *International Journal of Mental Health Systems*, 12(1), 1-10. doi: 10.1186/s13033-018-0245-8
- Ulleberg, P., & Rundmo, T. (1997). Job stress, social support, job satisfaction and absenteeism among offshore oil personnel. *Work & Stress*, 11(3), 215-228.
doi:10.1080/02678379708256836
- Ulven, A. J. (2009). Medical and psychological challenges in the offshore petroleum industry. *International Maritime Health*, 60(1-2), 40.
https://scholar.google.com.au/scholar?hl=en&as_sdt=0%2C5&q=Medical+and+psychological+challenges+in+the+offshore+petroleum+industry&btnG=
- Underhill, E., & Quinlan, M. (2011). How precarious employment affects health and safety at work: the case of temporary agency workers. *Industrial Relations*, 66(3), 397-421.
<https://doi.org/10.7202/1006345ar>
- Usher, K., & Jackson, D. (2017). Phenomenology. In J. Mills & M. Birks (Eds.), *Qualitative Methodology: A Practical Guide* (pp. 181-198).
<https://dx.doi.org/10.4135/9781473920163.n11>
- Valadez, A. A., & Jeremijenko, A. (2022). Can hologram technology promote family connection and combat anxiety and depression in oil and gas employees? *The APPEA Journal*, 62(S1), S358–S361. doi:10.1071/AJ21068
- van der Starre, R. E., Coffeng, J. K., Hendriksen, I. J., van Mechelen, W., & Boot, C. R. (2013). Associations between overweight, obesity, health measures and need for recovery in office employees: A cross-sectional analysis. *BMC public health*, 13(1), 1207.
<http://www.biomedcentral.com/1471-2458/13/1207>
- van der Voet, J., & Steijn, B. (2020) Team innovation through collaboration: How visionary leadership spurs innovation via team cohesion. *Public Management Review*, 1-20. doi: 10.1080/14719037.2020.1743344
- van Kleef, G. A., Homan, A. C., Beersma, B., & van Knippenberg, D. (2010). On angry leaders and agreeable followers: How leaders' emotions and followers' personalities shape motivation and team performance. *Psychological Science*, 21(12), 1827-1834.
<https://www.jstor.org/stable/40984583>
- van Manen, M. (1990). *Researching lived experience. Human science for an action sensitive pedagogy*. SUNY Press.
- Van Ort, S. V. (1981). Research design: Pilot study. *Readings for nursing research. St. Louis, MO: CV Mosby*.
- van Vegchel, N., De Jonge, J., Bakker, A. B., & Schaufeli, W. B. (2002). Testing global and specific indicators of rewards in the Effort-Reward Imbalance Model: Does it make any

difference? *European Journal of Work and Organizational Psychology*, 11, 403–421.

<http://dx.doi.org/10.1080/13594320244000265>

- Velasco Garrido, M., Mette, J., Mache, S., Harth, V., & Preisser, A. M. (2018). Sleep quality of offshore wind farm workers in the German exclusive economic zone: A cross-sectional study. *BMJ Open*, 8, e024006. doi:10.1136/bmjopen-2018-024006
- Virtanen, M., Ferrie, J. E., Singh-Manoux, A., Shipley, M. J., Stansfeld, S. A., Marmot, M. G., & Kivimäki, M. (2011). Long working hours and symptoms of anxiety and depression: A 5-year follow-up of the Whitehall II study. *Psychological Medicine*, 41(12), 2485-2494. doi: 10.1017/S0033291711000171
- Vojnovic, P., Michelson, G., Jackson, D., & Bahn, S. (2014). Adjustment, well-being and help-seeking among Australian FIFO mining employees. *Australian Bulletin of Labour*, 40(2), 242-261. doi: 10.3316/ielapa.791370738447216
- Voysey, W., (2012). *Satisfaction with a fly-in/fly-out (FIFO) lifestyle: Is it related to rosters, children and support resources utilised by Australian employees and partners and does it impact on relationship quality and stress?* [Honours thesis, Murdoch University].
- Warren, T. (2015). Work and social theory. In S. Edgell, H. Gottfried & E. Granter (Eds.), *The SAGE handbook of the sociology of work and employment* (pp. 34-51). doi:10.4135/9781473915206.n3
- Watts, J. (2004). *Best of both worlds? Seeking a sustainable regional employment solution to fly in-fly out operations in the Pilbara*. Pilbara Regional Council, 2004. <https://apo.org.au/node/147341>
- Weber, M. (2013). Introduction: The man and his work. In H. H. Gerth and C. Wright Mills (Eds.), *From Max Weber: Essays in sociology* (pp.33-105). Taylor & Francis Group. doi: 10.4324/9780203452196-6
- Wendsche, J., & Lohmann-Haislah, A. (2017). A meta-analysis on antecedents and outcomes of detachment from work. *Frontiers in Psychology*, 7, 2072. doi: 10.3389/fpsyg.2016.02072
- Western Mine Workers' Alliance (2021). *Submission to the Western Australian parliamentary inquiry into sexual harassment against women in the FIFO mining industry*. www.wmwa.org.au
- White, R. D., Jr. (2010). The micromanagement disease: Symptoms, diagnosis, and cure. *Public Personnel Management*, 39(1), 71-76. doi: 10.1177/009102601003900105
- Wilkinson, S. (2011). Focus group research. In D. Silverman (Ed.), *Qualitative research* (3rd ed, pp. 168-84). SAGE. http://link.library.curtin.edu.au/p?pid=CUR_ALMA21139343830001951
- Williams, K. D., & Nida, S. A. (2011). Ostracism: Consequences and coping. *Current Directions in Psychological Science*, 20(2), 71-75. doi: 10.1177/0963721411402480

- Wisker, G. (2007). *The Postgraduate Handbook: Succeed with your MA, MPhil, EdD and PhD*. Macmillan International Higher Education.
http://link.library.curtin.edu.au/p?pid=CUR_ALMA11181916400001951
- Witt, L. A., Burke, L. A., Barrick, M. R., & Mount, M. K. (2002). The interactive effects of conscientiousness and agreeableness on job performance. *Journal of Applied Psychology*, 87, 164–169. doi: 10.1037/0021-9010.87.1.164
- Wood, S. A. & De Menezes, L. M. (2010). Family-friendly management, organizational performance and social legitimacy. *International Journal of Human Resource Management*, 21, 1575–1597. doi: 10.1080/09585192.2010.500484
- Wood Mackenzie (2020, March 9). *Australia oil & gas industry outlook report*.
<https://apea.com.au/wp-content/uploads/2020/06/Australia-Oil-and-Gas-Industry-Outlook-Report.pdf>
- Woolford, M. H., Bugeja, L., Driscoll, T., & Ibrahim, J. E. (2017). Missed opportunities to prevent workplace injuries and fatalities. *NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy*, 27(1), 16–27. doi: 10.1177/1048291117693389
- WorkCover WA (2021, June). *Workers' compensation: A guide for employers*.
<https://www.workcover.wa.gov.au/resources/forms-publications/employer-publications/>
- WorkCover WA (2022, September). *Industry statistical report 2017/18 -2020/21. Mining in the Western Australian workers' compensation scheme*.
<https://www.workcover.wa.gov.au/resources/reports-and-statistics/>
- Work Health and Safety Act 2020* (WA).
[https://www.legislation.wa.gov.au/legislation/prod/filestore.nsf/FileURL/mrdoc_43434.pdf/\\$FILE/Work%20Health%20and%20Safety%20Act%202020%20-%20%5B00-00-02%5D.pdf?OpenElement](https://www.legislation.wa.gov.au/legislation/prod/filestore.nsf/FileURL/mrdoc_43434.pdf/$FILE/Work%20Health%20and%20Safety%20Act%202020%20-%20%5B00-00-02%5D.pdf?OpenElement)
- World Health Organization. (2005). *Mental health policies and programmes in the workplace*.
https://apps.who.int/iris/bitstream/handle/10665/43337/9241546794_eng.pdf
- World Health Organization. (2019). *Suicide*. <https://www.who.int/news-room/fact-sheets/detail/suicide>
- Wright, C. (1986). Routine deaths: Fatal accidents in the oil industry. *Sociological Review*, 34(2), 265-288. <https://doi.org/10.1111/j.1467-954X.1986.tb02702.x>.
- Wright, T. A., & Cropanzano, R. (2000). Psychological well-being and job satisfaction as predictors of job performance. *Journal of Occupational Health Psychology*, 5(1), 84–94. doi: 10.1037/1076-8998.5.1.84
- Wu, C. (2016). Personality change via work: A job demand–control model of big-five personality changes. *Journal of Vocational Behavior* 92, 157–166. doi: 10.1016/j.jvb.2015.12.001

- Wyatt, M., Cotton, P., & Lane, T. (2017). *Return to work: A comparison of psychological and physical injury claims. Analysis of the Return-to-Work Survey results*. Safe work Australia. https://research.monash.edu/files/289621291/284492446_oa.pdfh
- Yazdi, Z., Sadeghniaat-Haghighi, K., Loukzadeh, Z., Elmizadeh, K., & Abbasi, M. (2014). Prevalence of sleep disorders and their impacts on occupational performance: A comparison between shift workers and nonshift workers. *Sleep Disorders*, e870320. <http://dx.doi.org/10.1155/2014/870320>
- Yin, R. (2016). *Qualitative Research from Start to finish* (2nd ed). The Guilford Press. http://link.library.curtin.edu.au/p?pid=CUR_ALMA51112764250001951
- Yunus, S., & Mostafa, A. M. S. (2022). Flexible working practices and job-related anxiety: Examining the roles of trust in management and job autonomy. *Economic and Industrial Democracy*, 43(3), 1340-1368. <https://doi.org/10.1177/0143831X21995259>
- Zacharatos, A., Barling, J., & Iverson, R. D. (2005). High-performance work systems and occupational safety. *Journal of Applied Psychology*, 90(1), 77-93. doi: 10.1037/0021-9010.90.1.77
- Zeytinoglu, I., Lillevik, W., Seaton, B., & Moruz, J. (2004). Part-time and casual work in retail trade: Stress and other factors affecting the workplace. *Relations Industrielles/Industrial Relations*, 59(3), 516-544. <https://doi.org/10.7202/010923ar>
- Zimmerman, R. D. (2008). Understanding the impact of personality traits on individuals' turnover decisions: A meta-analytic path model. *Personnel Psychology*, 61(2), 309-348. <https://www.proquest.com/scholarly-journals/understanding-impact-personality-traits-on/docview/220134411/se-2>
- Zuckerman, M. (1994). *Behavioral expressions and biosocial bases of sensation seeking*. Cambridge University Press.

Every reasonable effort has been made to acknowledge the owners of copyright material. I would be pleased to hear from every copyright owner who has been omitted or incorrectly acknowledged.

9. APPENDIX

Appendix 1. NOPSEMA letter of research support

NOPSEMA

Australia's offshore energy regulator



Our ref: ID: A775618

A/Professor Dr Janis Jansz
Occupational Health & Safety Environmental Health.
Western Australian School of Mines: Minerals, Energy & Chemical Engineering,
Faculty of Science & Engineering.

J.Jansz@curtin.edu.au

Dear Sir/Madam

**Re: Letter of support for research proposal - Ms Emma D'Antoine - Identifying Offshore Workers
Mental Health Hazards and Risk Control Measures**

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is Australia's independent expert regulator for health and safety, structural (well) integrity and environmental management for all offshore oil and gas operations and greenhouse gas storage activities in Commonwealth waters, and in coastal waters where regulatory powers and functions have been conferred.

NOPSEMA is an independent statutory authority established under the Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGS Act).

NOPSEMA's principal functions are as follows:

- to promote the occupational health and safety (OHS) of persons engaged in offshore petroleum operations or offshore greenhouse gas storage operations
- to develop and implement effective monitoring and enforcement strategies to ensure compliance under the OPGGS Act and regulations
- to investigate accidents, occurrences and circumstances relating to OHS, well integrity and environmental management
- to advise on matters relating to OHS, well integrity and environmental management
- to make reports, including recommendations, to the responsible Commonwealth minister and each responsible state and Northern Territory minister
- to cooperate with other Commonwealth and state or Northern Territory agencies or authorities having functions relating to regulated operations.

To date there has been little research conducted into the mental health of the Australian offshore petroleum workforce. The research proposed by Curtin University will contribute to closing that research gap, and is expected to provide insights to support the development of actions to reduce psychosocial risk on offshore petroleum facilities. Such actions are expected to improve the psychological health of the offshore workforce, and consequently reduce the opportunity for psychological distress to contribute to major accident event causation. As such, the proposed project aligns with our principal functions to promote the OHS of persons engaged in offshore petroleum operations and to advise on matters relating to OHS.

Yours sincerely,



Chris Bourne

A/ Manager

Floating Production and Drilling

Safety and Integrity Division

26 March 2021

National Offshore Petroleum Safety and Environmental Management Authority

ABN: 22 385178 289

Appendix 2. Ethics approval letter



Research Office at Curtin

GPO Box U1987
Perth Western Australia 6845

Telephone +61 8 9266 7863
Facsimile +61 8 9266 3793
Web research.curtin.edu.au

25-Aug-2021

Name: Christopher Lagat
Department/School: Curtin University
Email: Christopher.Lagat@curtin.edu.au

Dear Christopher Lagat

RE: Ethics Office approval
Approval number: HRE2021-0512

Thank you for submitting your application to the Human Research Ethics Office for the project **Identifying Western Australian Offshore Oil and Gas Worker: Mental Health Hazards and Risk Control Measures**.

Your application was reviewed through the Curtin University Low risk review process.

The review outcome is: **Approved**.

Your proposal meets the requirements described in the National Health and Medical Research Council's (NHMRC) *National Statement on Ethical Conduct in Human Research (2007)*.

Approval is granted for a period of one year from 25-Aug-2021 to 24-Aug-2022. Continuation of approval will be granted on an annual basis following submission of an annual report.

Personnel authorised to work on this project:

Name	Role
Lagat, Christopher	CI
D'Antoine, Emma	Student
Jamiz, Janis	Supervisor
Barifcani, Ahmed	Supervisor
Harris, Mark	Supervisor
Shaw-Mills, Sherrilyn	Supervisor

Approved documents:

[Document](#)

Standard conditions of approval

1. Research must be conducted according to the approved proposal
2. Report in a timely manner anything that might warrant review of ethical approval of the project including:
 - ◆ proposed changes to the approved proposal or conduct of the study
 - ◆ unanticipated problems that might affect continued ethical acceptability of the project
 - ◆ major deviations from the approved proposal and/or regulatory guidelines

Appendix 3. Email invitation to participate in focus group discussion

Project Title: Identifying Western Australian Offshore Oil and Gas Workers Mental Health Hazards and Risk Control Measures

It has been identified that there is currently a gap in knowledge about the mental health risks associated with offshore work in the Western Australian oil and gas industry. This study aims to identify these risks, and currently used risk control measures through interviews with employees in this industry. The Focus Group discussion would assist with determining what is important to ask these offshore oil and gas workers to achieve this aim. You are requested to be a member of this important focus group as you have been identified as having expert knowledge and relevant work experience that would assist with developing the research questionnaire.

The focus group discussion would involve you:

1. Reading the information letter that details all relevant information and giving consent to participate in this focus group discussion.
2. Taking part in a focus group discussion to consider how working in the offshore oil and gas industry affects mental health

If you would be willing to participate in this focus group discussion, please contact Emma D'Antoine at emma.dantoine@postgrad.curtin.edu.au to obtain a copy of the information letter and research participation consent form.

You are free to withdraw at any point in the study without judgement or negative outcomes. Your identity will remain protected in this study.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number 2021-0512). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

If you have questions or require further clarification, please do not hesitate to contact me Emma D'Antoine at emma.dantoine@postgrad.curtin.edu.au or my supervisor Dr Christopher Lagat at christopher.lagat@curtin.edu.au (Phone: +61 8 9266 3007).

Thank you for your time.

Kind regards,

Emma D'Antoine

Appendix 4. Information letter for focus group participants

PARTICIPANT INFORMATION STATEMENT

HREC Project Number:	2021-0512
Project Title:	Identifying Western Australian Offshore Oil and Gas Workers Mental Health Hazards and Risk Control Measures
Chief Investigator:	Dr. Christopher Lagat
Student researcher:	Emma D'Antoine
Version Number:	Version 1
Version Date:	11 May 2021

What is the Project About?

The aim of this research is to identify offshore oil and gas workers' mental health hazards and deay feel uncoverlop risk control measures. The research objectives are to:

- Communicate with offshore oil and gas employees to identify perceived work-related mental health hazards and causes
- Assess systems of work, employer provided mental health education and support, and other strategies used in the offshore oil and gas industry to support employee mental health
- Observe how offshore oil and gas employees' mental health needs are considered in return-to-work programs following a work-related injury or illness
- Identify the negative economic effects for employers and employees due to psychosocial illnesses
- Identify health and safety hazards in regard to poor mental health and its impacts on offshore installations
- Develop a Mentally Healthy Workplaces Audit for use within the offshore oil and gas industry. This will provide companies with an opportunity to implement and assess mentally healthy work systems, workplaces, supportive management, mental health education, stigma free reporting and control emerging mental health risks, thereby reducing the risk of any associated negative economic effects

Who is doing the research?

The project is being conducted by Emma D'Antoine and will contribute to a Doctor of Philosophy at Curtin University. The research is being conducted in accordance with the National Statement on Ethical Conduct in Human Research (2007) 2.2.6h. There will be no costs of to you and you will not be paid for participating in this research. The research is being supervised by Dr Christopher Lagat from the Department of Petroleum Engineering at the Western Australia School of Mines (christopher.lagat@curtin.edu.au).

Why am I being asked to take part and what will I have to do?

You are being requested to participate in this research because you have expertise in understanding the mining industry and / or how mental health concerns are managed. Participation is voluntary and

would entail a focus group discussion with six other experts for approximately one hour over an online meeting platform (Microsoft Teams). We will make a digital audio/video recording so we can concentrate on what you have to say and not distract ourselves with taking notes.

Are there any benefits' to being in the research study?

There may be no direct benefit to you from participating in this research. It is anticipated that the results of this research will facilitate the identification of offshore oil and gas workers' mental health hazards and enable the development of risk control measures.

Are there any risks, side-effects, discomforts or inconveniences from being in the research project?

You may feel uncomfortable discussing some aspects of this research. We have been careful to make sure that the focus group questions do not cause you any distress. However, if you do feel anxious about any of the questions you do not need to answer them. If the questions cause any concerns or upset you, we recommend you contact your GP, and / or we can provide contact details for support services such as Beyondblue, or Lifeline. Apart from giving up your time, we do not expect that there will be any risks or inconveniences associated with taking part in this study.

Who will have access to my information?

The information collected in this research will be re-identifiable (coded). This means that we will collect data that can identify you but will then remove identifying information on any data or sample and replace it with a code when we analyse the data. Only the research team have access to the code to match your name if it is necessary to do so. Any information we collect will be treated as confidential and used only in this study unless otherwise specified. The following people will have access to the information we collect in this research: the research team and, in the event of an audit or investigation, staff from the Curtin University Office of Research and Development.

How information will be stored?

Electronic data will be password-protected and hard copy data (including video and audio tapes) will be in locked storage. The information we collect in this study will be kept under secure conditions at Curtin University for 7 years after the research is published and then it will be destroyed. The results of this research may be presented at conferences or published in professional journals. You will not be identified in any results that are published or presented. Whilst all care will be taken to maintain privacy and confidentiality of any information shared at a focus group discussion, you should be aware that you may feel embarrassed or upset if one of the group members repeats things said in a confidential group meeting.

Will you tell me the results of the research?

Research results will be written as an article for the National Offshore Petroleum Safety and Environmental Management Authority publication and submitted to be shared with the offshore oil and gas industry Australia wide. If you would like a personal copy of the research report, you can provide the researcher with your email address and a copy of the report will be sent to you once the research is completed.

Do I have to take part in the research study?

Taking part in research is voluntary. It is your choice to take part or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the study. If you choose not to take part or start and then stop the study, it will not

affect your relationship with the company you work for, staff or colleagues. You are free to withdraw from the study. With your permission, if you chose to leave the study, we will use any information collected unless you tell us not to.

What happens next and who can I contact about the research?

If you decide to take part in this research, we will ask you to sign the consent form. Please contact Emma D'Antoine at emma.dantoine@postgrad.curtin.edu.au if you would like a consent form to be sent to you to consent to take part in the research focus group. Signing the consent form is telling us what you have read, and what has been discussed, and indicates that you agree to take part in the research. You will be given a copy of the information sheet and the consent form to keep.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number 2021-0512). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

Appendix 5. Consent form

CONSENT FORM

HREC Project Number:	2021-0512
Project Title:	Identifying Western Australian Offshore Oil and Gas Workers Mental Health Hazards and Risk Control Measures
Chief Investigator:	Dr. Christopher Lagat
Student researcher:	Emma D'Antoine
Version Number:	Version 1
Version Date:	11 May 2021

- I have read, *or had read to me in my first language*, the information statement version listed above and I understand its contents.
- I believe I understand the purpose, extent and possible risks of my involvement in this project.
- I voluntarily consent to take part in this research project.

<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to you using any data I provided before withdrawing from the study, if relevant
<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to being video recorded
<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to being audio-recorded

- I have had an opportunity to ask questions and I am satisfied with the answers I have received.
- I understand that this project has been approved by Curtin University Human Research Ethics Committee and will be carried out in line with the National Statement on Ethical Conduct in Human Research (2007).
- I understand I will receive a copy of this Information Statement and Consent Form.

Participant Name	
Participant Signature	
Date	

Declaration by researcher: I have supplied an Information Letter and Consent Form to the participant who has signed above, and believe that they understand the purpose, extent and possible risks of their involvement in this project.

Researcher Name	
Researcher Signature	
Date	

Appendix 6. Focus group questions.

Positioning statement: The offshore oil and gas working environment is unique and may hold many psychological stressors for employees. When considered together, these factors may pose a greater than average risk to employees' mental health and wellbeing. This discussion aims to facilitate the development of effective interview questions for the research participants of the study *Identifying Western Australian Offshore Oil and Gas Workers Mental Health Hazards and Risk Control Measures*.

Exploratory Questions:

1. In your experience are there any management practices or work organization practices that affect mining industry employees' mental health? If so please explain.
2. Do you know of any psychosocial obstacles for employees when returning to work following a work-related injury or ill health and if so how do you think that these can these be mitigated?
3. What do you think are the main types of, and causes of, mental health stressors for offshore oil and gas workers? What risk control measures do employers use for these mental health stressors and how effective do you think they are?
4. If employees have poor mental health, how does this impact on offshore employees' health and their safety?
5. Do you know of any economic effects on organizations when employees have to deal with psychosocial issues and/or poor mental health? If so, what are the economic effects?
6. What do you think are the economic effects of having good employee mental health practices implemented by the company?
7. Regarding best practice, what do you find gives the best outcomes for promoting positive mental health for employees in the workplace?
8. Where do you think that there are opportunities for improvement in promoting positive mental health practices for contractors and workers with ongoing employment in the offshore oil and gas industry?

Exit statement:

Is there anything else that you would like to add to the discussion, or anything that you feel was missed?

Appendix 7. Email invitation to participate in interview

Project Title: Identifying Western Australian Offshore Oil and Gas Workers Mental Health Hazards and Risk Control Measures

It has been identified that there is currently a gap in research into the mental health risks associated with offshore work in the Australian oil and gas industry. This study intends to identify these risks through interviews with employees in this industry.

This research would involve you:

1. Reading the information letter that details all relevant information and giving consent to participate in this research.
2. Taking part in an online recorded video interview to discuss how working in the offshore oil and gas industry affects mental health

If you are willing to be interviewed please contact Emma D'Antoine at emma.dantoine@postgrad.curtin.edu.au to obtain a copy of the information letter and research participation consent form. We also encourage you to share this opportunity to participate in an interview related to this research with your colleagues.

You are free to withdraw at any point in the study without judgement or negative outcomes. Your identity will remain protected in this study.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number 2021-0512). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

If you have questions or require further clarification please do not hesitate to contact me Emma D'Antoine at emma.dantoine@postgrad.curtin.edu.au or my supervisor Dr Christopher Lagat at christopher.lagat@curtin.edu.au (Phone: +61 8 9266 3007).

Thank you for your time.

Kind regards,
Emma D'Antoine

Appendix 8. Information letter for interview participants

PARTICIPANT INFORMATION STATEMENT

HREC Project Number:	2021-0512
Project Title:	Identifying Western Australian Offshore Oil and Gas Workers Mental Health Hazards and Risk Control Measures
Chief Investigator:	Dr. Christopher Lagat
Student researcher:	Emma D'Antoine
Version Number:	Version 1
Version Date:	11 May 2021

What is the Project About?

The aim of this research is to identify offshore oil and gas workers' mental health hazards and develop risk control measures. The research objectives are to:

- Communicate with offshore oil and gas employees to identify perceived work-related mental health hazards and causes
- Assess systems of work, employer provided mental health education and support, and other strategies used in the offshore oil and gas industry to support employee mental health
- Observe how offshore oil and gas employees' mental health needs are considered in return-to-work programs following a work-related injury or illness
- Identify the negative economic effects for employers and employees due to psychosocial illnesses
- Identify health and safety hazards in regard to poor mental health and its impacts on offshore installations
- Develop a Mentally Healthy Workplaces Audit for use within the offshore oil and gas industry. This will provide companies with an opportunity to implement and assess mentally healthy work systems, workplaces, supportive management, mental health education, stigma free reporting and control emerging mental health risks, thereby reducing the risk of any associated negative economic effects

Who is doing the research?

The project is being conducted by Emma D'Antoine and will contribute to a Doctor of Philosophy at Curtin University. The research is being conducted in accordance with the National Statement on Ethical Conduct in Human Research (2007) 2.2.6h. There will be no costs of to you and you will not be paid for participating in this research. The research is being supervised by Dr Christopher Lagat from the Department of Petroleum Engineering at the Western Australia School of Mines (christopher.lagat@curtin.edu.au).

Why am I being asked to take part and what will I have to do?

You are being requested to participate in this research because you are an Australian offshore oil and gas worker. Participation is voluntary and would entail a one-to-one approximately an hour interview

over an online meeting platform. This will take place during shore leave at a time convenient for you. We will make a digital audio/video recording so we can concentrate on what you have to say and not be distracted with taking notes. After the interview, a full written copy of the recording will be sent to you to check and approve the transcript.

Are there any benefits' to being in the research project?

There may be no direct benefit to you from participating in this research. Sometimes, people appreciate the opportunity to discuss their opinions and feelings. It is anticipated that the results of this research will facilitate the identification of offshore oil and gas workers' mental health hazards and enable the development of risk control measures.

Are there any risks, side-effects, discomforts or inconveniences from being in the research project?

You may feel uncomfortable discussing some aspects of this research. We have been careful to make sure that the questions in the interview do not cause you any distress. However, if you do feel anxious about any of the questions you do not need to answer them. If the questions cause any concerns or upset you, we recommend you contact your GP, and / or we can provide contact details for support services such as Beyondblue, or Lifeline. Apart from giving up your time, we do not expect that there will be any risks or inconveniences associated with taking part in this study.

Who will have access to my information?

The information collected in this research will be re-identifiable (coded). This means that we will collect data that can identify you but will then remove identifying information on any data or sample and replace it with a code when we analyse the data. Only the research team have access to the code to match your name if it is necessary to do so. Any information we collect will be treated as confidential and used only in this study unless otherwise specified. The following people will have access to the information we collect in this research: the research team and, in the event of an audit or investigation, staff from the Curtin University Office of Research and Development.

How information will be stored?

Electronic data will be password-protected and hard copy data (including video and audio tapes) will be in locked storage. The information we collect in this study will be kept under secure conditions at Curtin University for 7 years after the research is published and then it will be destroyed. The results of this research may be presented at conferences or published in professional journals. You will not be identified in any results that are published or presented.

Will you tell me the results of the research?

Research results will be written as an article for the National Offshore Petroleum Safety and Environmental Management Authority publication and submitted to be shared with the offshore oil and gas industry Australia wide. If you would like a personal copy of the research report, you can provide the researcher with your email address and a copy of the report will be sent to you once the research is completed.

Do I have to take part in the research project?

Taking part in research is voluntary. It is your choice to take part or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the project. If you choose not to take part or start and then stop the study, it will not affect your relationship with the company you work for, staff or colleagues. You are free to withdraw

from the study prior to approving your transcript. With your permission, if you chose to leave the study, we will use any information collected unless you tell us not to.

What happens next and who can I contact about the research?

If you decide to take part in this research, we will ask you to sign the consent form. Please contact Emma D'Antoine at emma.dantoine@postgrad.curtin.edu.au if you would like a consent form to be sent to you to consent to take part in the research interview group. Signing the consent form is telling us that you understand what you have read, and what has been discussed, and indicates that you agree to take part in the research. You will be given a copy of the information sheet and the consent form to keep.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number 2021-0512). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

Appendix 9. Pilot study interview questions

INTERVIEW QUESTIONS

Positioning statement: It has been identified that the offshore oil and gas working environment can be stressful for workers, particularly when considering mental health and wellbeing so it is necessary to investigate the psychosocial stressors which present themselves to employees in this environment and examine the personal, organisational and economic implications of poor mental health caused by these stressors. A work-related mental health hazard is defined as work demands that do not match the workers to their knowledge and abilities or the resources that they have available to do the work. The response can be cognitive, physical, behavioural or emotional. Work related mental health hazards include, but are not limited to, physically and/or cognitively demanding work, aggression, bullying, interpersonal conflict, under-supervision, over-supervision, lack of constructive feedback, lack of support, lack of respect, work overload, lack of role clarity, poor organisational change management, unplanned work events (e.g., over-time, call-outs), awkward roster design (e.g. mid-swing rotations, working night shifts after traveling during the day), extreme weather conditions, suboptimal living and sleeping conditions (e.g. vibration, restricted living area, high levels of ambient noise, lack of privacy), poor organisational justice, fatigue, burnout, experiencing dangerous occurrences, exposure to trauma, and emergency management. Further, being physically or socially isolated from friends and family may be an additional burden (NOPSEMA, 2021a; DMIRS, 2021; ISO, 2021).

The aim of this interview is to identify mental health hazards and possible solutions to these stressors and inform organisations and policy makers of best practices for preventing, identifying and improving poor mental health in the offshore working environment.

Demographic information

What is your role in the oil and gas industry?

Do you work for a large (more than 200 employees) or small company (less than 200 employees)?

What best defines your work status? You may agree to more than one.

- Permanent
- Contractor
- Part of a service company
- Casual

Length of experience in the offshore oil and gas industry?

- Less than 5 years
- 6-10 years
- 11-15 years
- 16-20 years
- 21-25 years
- 26-30 years
- 30+ years

Which age group do you belong to?

- Under 25
- 26-30

- 31-35
- 36-40
- 41-45
- 46-50
- 51-55
- 56-60
- 60+

Exploratory questions

- What are your rostered hours of work and for how many days/ weeks at a time are you at a time rostered to work offshore?
- How do you feel about this?
- Have you experienced any management or work organisation factors that can affect your mental health?
- Are there any environmental factors that affect your mental health when working offshore?
- What do you perceive to be the main work-related mental health hazards?
- If you have experienced returning to work after an illness or injury, how were your mental health needs considered in your return-to-work plan?
- How does the workplace culture affect whether someone will seek help for poor mental health?
- Does stigma seem to affect poor mental health help-seeking and reporting?
- Have you ever had a psychological illness or suffered from poor mental health?
 - If 'Yes':
 - i) Has having a psychological illness or poor mental health had an effect on you financially?
 - If 'Yes':
 - ii) Do you know of any economic effects on the organisation from yourself or a colleague having a psychological illness or poor mental health?
 - If 'Yes':
 - How has this affected the organisation?
- What mental health education does your employer provide?
- What strategies does your employer implement to support employee mental health?
- What interventions or approaches does the company have to develop employee resilience?
- In your experience, what have you found most beneficial for improving employee mental health?
- Has the COVID-19 pandemic had any effect on your mental health? If so why?

Exit statement:

Is there anything else that you would like to tell me about mental health hazards, what is done well to manage mental health hazards, if there are opportunities for improvement in managing employee mental health in the offshore oil and gas industry?

Appendix 10. Main study interview questions

INTERVIEW QUESTIONS

Positioning statement: It has been identified that the offshore oil and gas working environment can be stressful for workers, particularly when considering mental health and wellbeing so it is necessary to investigate the psychosocial stressors which present themselves to employees in this environment and examine the personal, organisational and economic implications of poor mental health caused by these stressors. A work-related mental health hazard is defined as work demands that do not match the workers to their knowledge and abilities or the resources that they have available to do the work. The response can be cognitive, physical, behavioural or emotional. Work related mental health hazards include, but are not limited to, physically and/or cognitively demanding work, aggression, bullying, interpersonal conflict, under-supervision, over-supervision, lack of constructive feedback, lack of support, lack of respect, work overload, lack of role clarity, poor organisational change management, unplanned work events (e.g., over-time, call-outs), awkward roster design (e.g. mid-swing rotations, working night shifts after traveling during the day), extreme weather conditions, suboptimal living and sleeping conditions (e.g. vibration, restricted living area, high levels of ambient noise, lack of privacy), poor organisational justice, fatigue, burnout, experiencing dangerous occurrences, exposure to trauma, and emergency management. Further, being physically or socially isolated from friends and family may be an additional burden (NOPSEMA, 2021a; DMIRS, 2021; ISO, 2021).

The aim of this interview is to identify mental health hazards and possible solutions to these stressors and inform organisations and policy makers of best practices for preventing, identifying and improving poor mental health in the offshore working environment.

Demographic information

What is your role in the oil and gas industry?

Do you work for a large (more than 200 employees) or small company (less than 200 employees)?

What best defines your work status? You may agree to more than one

- Permanent
- Contractor
- Part of a service company
- Casual

Length of experience in the offshore oil and gas industry?

- Less than 5 years
- 6-10 years
- 11-15 years
- 16-20 years
- 21-25 years
- 26-30 years
- 30+ years

Which age group do you belong to?

- Under 25
- 26-30
- 31-35
- 36-40
- 41-45
- 46-50
- 51-55
- 56-60
- 60+

Exploratory questions

- What are your rostered hours of work and for how many days/ weeks at a time are you at a time rostered to work offshore?
- How do you feel about this?
- Have you experienced any management or work organisation factors that have caused you stress? If yes, please explain how this affected your mental health.
- Have you had any time off work due to stress?
- Are there any environmental factors that have affected your mental health when working offshore? If yes, please explain.
- What do you perceive to be the main work-related mental health hazards?
- Have you experienced any psychosocial stressors? If yes, please explain.
- If you have experienced returning to work after an illness or injury, how were your mental health needs considered in your return-to-work plan?
- How does the workplace culture affect whether someone will seek help for stress or poor mental health?
- In what way have you found that the personality of managers affects employee mental health?
- In what way have you found that the personality of co-workers affects employee mental health?
- Does stigma seem to affect poor mental health help-seeking and reporting?
- Have you ever had a psychological illness or suffered from poor mental health?
 - If 'Yes':
 - Has having a psychological illness or poor mental health had an effect on you financially?
- Have there been any economic effects on your employer or its employees from a worker being stressed or from having poor mental health? If yes, describe the effects.
- Does your employer provide mental health education? If yes, please describe the education provided.
- Does your employer implement any other strategies for mental health promotion or support? If yes, please describe these strategies.
- What interventions or approaches does the company have to develop employee resilience? Resilience is the capacity of a person to recover quickly from difficult situations through having good problem-solving skills that enable the person to cope when there are difficulties.
- In your experience, what have you found most beneficial for improving employee mental health?
- Has the COVID-19 pandemic had any effect on your mental health? If so why?

Exit statement:

Is there anything else that you would like to tell me about psychosocial stressors or mental health hazards, what is done well to manage these hazards and if there are opportunities for improvement in managing employee mental health in the offshore oil and gas industry?

References

Department of Mines, Industry Regulation and Safety [DMIRS]. (2021) *Psychosocial hazards in the workplace. Draft Code of Practice*. Government of Western Australia.

ISO (2021). *ISO 45003:2021. Occupational health and safety management — Psychological health and safety at work — Guidelines for managing psychosocial risks*.

<https://www.iso.org/obp/ui/#iso:std:iso:45003:ed-1:v1:en>

NOPSEMA. (2021). *Psychosocial risk management Draft Guidance Note. N-09000-GN1958 A757599*. Author.

Appendix 11. Permission statements

I have obtained permission from the copyright owners to use any third-party copyright material reproduced in the thesis, or to use any of my own published work (e.g., journal articles) in which the copyright is held by another party.

I, Emma D'Antoine, have received appropriate copyright permission to include in my research report the paper titled 'Psychosocial safety and health hazards and their impacts on offshore oil and gas installations' published by MDPI in the journal *Safety*.

MDPI Open Access Information and Policy

All articles published by MDPI are made immediately available worldwide under an open access license. This means:

- everyone has free and unlimited access to the full-text of *all* articles published in MDPI journals;
- everyone is free to re-use the published material if proper accreditation/citation of the original publication is given;

Permissions

No special permission is required to reuse all or part of article published by MDPI, including figures and tables. For articles published under an open access Creative Common CC BY license, any part of the article may be reused without permission provided that the original article is clearly cited. Reuse of an article does not imply endorsement by the authors or MDPI.

I, Emma D'Antoine, have received appropriate copyright permission to include in my research report the paper titled 'Effects of the COVID-19 pandemic on employees' psychological health in the offshore oil and gas industry and opportunities for improvement' published in the *World Safety Journal*.

11 September 2023

Dear Emma:

Please find below the required **Article Permission**.

Title:

Effects of the COVID-19 pandemic on employees' psychological health in the offshore oil and gas industry and opportunities for improvement.

Author:

D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M. & Lagat, C.

Publication:

World Safety Journal, 31(2), 1-14.

Year of Publication:

2022

DOI:

<https://doi.org/10.5281/zenodo.6790705>

Publisher:

World Safety Organization

Please note that, as the author of this WSO article, you retain the right to include it in a thesis or dissertation, provided it is not published commercially. Permission is not required, but please ensure that you reference the journal as the original source. For information on this or on your other retained rights, please visit: <https://worldsafety.org/wso-world-safety-journal/>

Should you require further information, please do not hesitate to ask.

Sincerely yours

Prof. Dr. Elias M. Choueiri

Editor-in-Chief

World Safety Journal

I, Emma D'Antoine, have received appropriate copyright permission to include in my research report the paper titled 'COVID-19 and offshore oil and gas workers: The role of personality', published in *Social Sciences & Humanities Open*.

We hereby grant you permission to reprint the material below at no charge in your thesis subject to the following conditions:

RE: COVID-19 and offshore oil and gas workers: The role of personality, Social Sciences & Humanities Open, Volume 7, Issue 1, 2023, D'Antoine et al.

1. If any part of the material to be used (for example, figures) has appeared in our publication with credit or acknowledgment to another source, permission must also be sought from that source. If such permission is not obtained then that material may not be included in your publication/copies.

2. Suitable acknowledgment to the source must be made, either as a footnote or in a reference list at the end of your publication, as follows:

"This article was published in Publication title, Vol number, Author(s), Title of article, Page Nos, Copyright Elsevier (or appropriate Society name) (Year)."

3. Your thesis may be submitted to your institution in either print or electronic form.

4. Reproduction of this material is confined to the purpose for which permission is hereby given.

5. This permission is granted for non-exclusive world English rights only. For other languages please reapply separately for each one required. Permission excludes use in an electronic form other than submission. Should you have a specific electronic project in mind please reapply for permission.

6. As long as the article is embedded in your thesis, you can post/share your thesis in the University repository.

7. Should your thesis be published commercially, please reapply for permission.

8. Posting of the full article/ chapter online is not permitted. You may post an abstract with a link to the Elsevier website www.elsevier.com, or to the article on ScienceDirect if it is available on that platform.

Kind regards,

Roopa Lingayath
Senior Copyrights Specialist
ELSEVIER | HCM - Health Content Management

I, Emma D'Antoine, have received appropriate copyright permission to include in my research report the paper titled 'The effects of casualisation on mental wellbeing and risk management in the offshore oil and gas industry', published in *Universal Journal of Operations and Management*.

Dear Emma,

Thank you for your email. The journal is fully open access, and authors holds the copyright of the published articles.

Please feel free to use your own paper, and it's not necessary to ask for our permission.

Kind regard,
Bert



Effects of the COVID-19 pandemic on employees' psychological health in the offshore oil and gas industry and opportunities for improvement

Emma D'Antoine^{1,*}, Janis Jansz^{1,2}, Ahmed Barifcani¹, Sherrilyn Shaw-Mills², Mark Harris³, Christopher Lagat¹

¹ WA School of Mines: Minerals, Energy and Chemical Engineering, Curtin University, Bentley, Western Australia.

² Healthforce Group: High Wycombe, Western Australia.

³ School of Economics, Finance and Property, Curtin University, Bentley, Western Australia.

KEYWORDS

COVID-19
Mental health
Offshore oil and gas

ABSTRACT

This qualitative study aimed to identify psychosocial hazards in the highly-stressful environment of the Australian offshore oil and gas industry. The study utilised a focus group, which consisted of 6 participants from various offshore facilities, at varied organisational levels and 2 representatives of 2 oil and gas legislative organisations. NVivo analysis showed that the main psychosocial concerns were casualisation, the COVID-19 pandemic and its effects on rosters and job security, fear of re-injury and making mistakes. The findings can be used to help guide policy and develop risk control measures for legislative bodies and organisations to minimise psychosocial hazards.

1. INTRODUCTION

Australia's offshore oil and gas employees are a neglected field in terms of research, particularly when considering psychological hazards. While the Australian onshore fly-in-fly-out (FIFO) sector has seen an increase in interest regarding psychosocial stressors in recent years (Bowers et al 2018; Parker et al 2018), its offshore counterpart remains relatively overlooked. Considering that the onshore FIFO industry has witnessed a significant increase in suicides over the past ten years (Parker et al 2018), and are a cohort which are much less likely to seek help for psychological distress (Bowers et al 2018), this research is not only crucial, but also timely.

As identified by Parkes (1992), offshore working environments present many hazards for employees and organisations alike. The isolated environment, with added factors such as changeable climate, extreme temperatures, variable ocean conditions and excessive geographical distance, along with long absences from home and family, close working and sleeping arrangements and irregular or long work shifts pose unique threats to psychological wellbeing. These factors may be present along with usual work stressors such as job demands, lack of autonomy (Bergh et al., 2014), bullying and violence (Commission for Occupational Safety and Health, 2019), and low levels of supervisor or colleague support (Wyatt & Lane, 2017).

Corresponding author: emma.dantoine@postgrad.curtin.edu.au

<https://doi.org/10.5281/zenodo.6790705>

The ongoing COVID-19 pandemic has exacerbated these existing psychosocial stressors for offshore oil and gas workers. New work rosters introduced to comply with COVID isolation procedures have seen an increase in poor mental health for FIFO employees in addition to having negative impacts on home and family life (Neis et al., 2020).

2. METHODOLOGY

This research was conducted as an exploratory study with the responses to the interview questions analysed qualitatively using NVivo to identify emerging themes. It was conducted to assist in formulating qualitative research questions for a larger study and was conducted in Perth, Western Australia. Participants were recruited according to an eligibility standard in order to obtain individuals who held specialist knowledge and understanding about the phenomena (Creswell, 2012), as well as being able to provide the researcher with insights from lived experience (van Manen, 1990). Approval was gained by the Human Research Ethics Committee (HREC) (Ethics Approval number HRE2021-0512).

The study used a focus group to provide insights into the psychosocial stressors present on offshore oil and gas facilities in Western Australia. Focus groups allow researchers to hear the experiences of several speakers at one time (Smith et al., 2009) and is a sufficient enough method of analysis to be used alone (Flick, 2007). As a diverse and varied group is required to satisfy the quality criteria for qualitative research, the focus group remained the ideal method for this study (Flick, 2007).

The focus group meeting was conducted online via Microsoft Teams and consisted of eight participants, making sure to be around the approximate number of participants suggested by several researchers. A minimum of six participants is recommended by Morse (1994). Creswell (1998) suggests between five to twenty-five participants, however the validity of a study in practical settings is increased with a sample size of less than twenty, which may also help develop the relationship between the researcher and the participant (Crouch & McKenzie, 2006). Moreover, the study can benefit from a richness and depth that a larger sample size may not generate (Smith & Osborn, 2008). The focus group was utilised to develop interview questions for a larger study and multiple sessions were not required as sufficient relevant information was obtained to develop the interview questions.

2.1 Participants

There were 8 participants in the focus group discussion. Representation of management in the offshore oil and gas industry was provided by participant #1, a Health, Safety, Security and Environment (HSSE) advisor who had ongoing employment at a large offshore oil and gas company. Participant #2 was an Offshore and Maintenance (O&M) crewing manager who managed the crewing for an offshore oil and gas contractor organization. Participant #3 was a representative from The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), who had knowledge of offshore oil and gas legislation and Australian workplace health and safety. Participant #4 was an offshore oil and gas contractor employee who worked on a casual basis, whilst participant #5 was a graduate engineer with ongoing employment. Participant #6 was a representative of the Department of Mines, Industry Regulation and Safety (DMIRS), who gave insight into how onshore oil and gas mining organisations manage mental health concerns. Participant #7 was an offshore oil and gas contractor worker with ongoing employment for a contracting company. The contract workers were included with the intent of providing insights into the less permanent nature of this type of work. Participant #8 was a permanent employee of an offshore oil and gas service company. One participant was female and the remaining 7 participants were male.

<https://doi.org/10.5281/zenodo.6790705>

2.2 Procedure

The focus group meeting was conducted via Microsoft Teams, which, through the anonymous nature of the method, assisted in reducing individual inhibitions (Liamputtong, 2011), and in the facilitation of gathering unique personal insights along with common group experiences (Murray, 1997). Appendix 1 documents the focus group questions asked. Open-ended questions were used in this focus group, allowing members equal opportunities to contribute (Smith et al, 2009) and put forward detailed narratives of their experiences (Creswell, 2014), rather than a questionnaire, which would provide the researcher with a less holistic representation of the phenomena (Brannen, 2005). A semi-structured technique was utilised in order to draw out the most authentic and accurate accounts of participants' experiences. Questions were analysed separately, and word frequencies and word clouds were produced for each.

2.3 Analysis

During the focus group discussion, notes were taken by the researcher. After the focus group had concluded, the transcripts were read and reread with an open mind and transcripts were arranged into what each participant had said in response to each question. Transcripts were then returned to all participants for them to check and return to the researcher.

Using NVivo enabled the researcher to delve deeper into the data collected from the focus group and thus provided a rich account of participant experiences. NVivo is ideal for studies that use interpretative methods of analysis and for semi-structured interviews with a small sample size. NVivo assisted in the categorisation, classification and sorting of data in order to identify emerging themes. Due to the coding of data being the researcher's responsibility (Sotiriadou et al., 2014), it is then possible for the researcher to become more involved with the content. Codes and sub-codes were assigned to phrases in the discussion and patterns and themes were revealed in the content. The findings from the analysis were then compared with the results from the literature review.

2.4 Validity, reliability, credibility and generalisability

Participants' transcripts were returned to them for checking, ensuring their accuracy and validity, as well as representing participants' experiences (Birt et al., 2016; Long & Johnson, 2000). Member checking also adds to the study's credibility (Ramsook, 2018). Participants made any necessary changes, contributing to the reliability and validity of information. Focus group proceedings were recorded and transcribed, which maintained credibility. Continual self-reflection for researcher bias, methodological biases and reflection on the analysis process ensured further credibility (Sandelowski, 1993) and reflexivity (Ramsook, 2018) was afforded to the study. The results of this study can be generalised to other contexts and environments (Patton, 1990), even though the findings are unique to each participant (Ramsook, 2018), and can be replicated providing there is sufficient information regarding the study's context, methodology, findings and conclusions (Creswell, 2012; Moustakas, 1994) such as Arctic or Antarctic stations, space stations and other offshore and maritime facilities.

3. RESULTS

NVivo analysis revealed that the main themes that emerged throughout the discussion were the impact of COVID-19 on rosters, ability to travel to work, work hours and job continuity. Having irregular or short-term employment, and the casualisation of the workforce. In fact, casual workers tend not to want to inconvenience their employer by refusing extra shifts for fear of not receiving work in the future. Participant #4 also revealed that casual workers are less likely to stand their ground for the same

<https://doi.org/10.5281/zenodo.6790705>

reason. Further themes emerging from the analysis revealed a fear of making mistakes and re-injury after an accident.

The importance of Employee Assistance Programs (EAPs) were also revealed in this discussion:

“There’s a medic, but he’s there for incidents and accidents that occur out with normal operating practices, and a similar service can be provided by an EAP. We do have guys who I think have things that are affecting them externally and need to call somebody, and you need that that EAP there”.

One participant stated that making a mistake while at work was the biggest concern, stating:

“I think when I was sent off shore, my biggest fear I guess, was making a mistake. I think one of the more important, most important, ways of addressing that is the Stop Job Authority that everyone has. So you’re expected to look out for yourself and look out for everyone else. And if people can see that you’re about to do something you shouldn’t, they would take you aside and have that discussion”.

The pressure to complete tasks on time was a particular factor in accident causation, with participant #8 asserting:

“I would argue that possibly, controversially, that a lot of the perceived pressure, which I should point out which is real, is absolutely an important part of how a lot of accidents happen. People perceive that they have to get their job done. They don’t want to speak up, they want to get after it. They want to be as fast as they can, as quick as they can. They don’t realise really, that’s secondary to people not getting hurt, but that comes from lump sum contracts. The companies are getting lump sum contracts and the contractors that bid on them as cheap as possible and the faster they go the more money they make”.

When there is a lack of employment, skills and qualifications are unable to be maintained and it is very costly (e.g. participant #4 stated it was \$15,000 for one ‘ticket’) to obtain these again. Participant #4 stated that when they were unable to maintain up-to-date qualifications, this results in a loss of relevant skills required for the position. Job uncertainty compounded the anxiety felt by the loss of up-to-date knowledge and skills, particularly as updating these was an unlikely option for employees due to their high cost.

Returning to work after being injured caused psychological stress to employees due to a fear of re-injury. When returning to work, a loss of support during recovery was a distressing factor. Participant #2 noted:

“Returning to 12-hour work days, back into work jargon again, obviously missing family and that support that they had at home while they were recovering, whether it be physio, GP, and I think that that’s a big one I guess, and depending on how long they were away for and I think possibly things that could assist could be doing a bit of a hand over in advance over the phone with team members, trying to catch up and just overall prepared to go back into that work environment”.

It was recommended by participant #2 that employees returning to work from psychological injuries should be aided by a handover process in advance before their full return to work, to assist in preparing their return to the work environment. This is in keeping with the process for return to work after

physical injury, where employees may be awarded light duties until they are declared fit to work in their usual role (participant #8).

As part of the anxieties around returning to work, the fear of re-injury was a major contributor in #7's experience of returning to work offshore:

“Overcoming the fear of a recurrence of the injury, for example: someone injured due to a dropped object, or fall from height may be more hesitant to perform the same role due to a lack of confidence, or faith in equipment, due to the injury”.

Last minute changes to offshore rosters have been frequent, particularly since the start of the COVID-19 pandemic. Participant #8 highlighted that extended work rosters were difficult to cope with emotionally:

“If you're going out for a two-day job and it became seven days, man it was painful right? It was really, really, really hard. It's only like five more days and I did three months a couple of times you know, you get home a bit frazzled”.

One participant stressed the importance of resilience, especially in light of recent changes in rosters due to the pandemic. Organisations should promote self-awareness and enable employees to recognise stressful factors or events and their sources, ensuring a proactive approach to psychological support, rather than responding to incidents after the event. Wellbeing interventions identified included presentations and literature, supervisor support and a gradual reintegration into work for those with physical and psychological injuries.

Participant #8 went on to identify mental resilience as a protective factor in dealing with last-minute modifications to rosters, although believed this to be relatively lacking in some employees. Confirming the literature, participant #7 stated:

“I think a lot of the problems at the moment, not stemming from how the roster is, it's more how the rosters are going with COVID, how we're having to cope with COVID, going through with this, where people are having to stay behind or they're being asked to come back because so and so can't get in or whatever you know, because you have to keep those skills up and also for the people that can't get in there, it's that mental health, the mental issues - they're upset that they can't get there. What's going to happen to my job”?

Participants stated that there remains room for improvement in internet and communications for offshore workers. Several of the discussion group members who were offshore at the time of interview were affected by poor internet connections. Other participants who were onshore expressed their frustration with disrupted internet services offshore, revealing that during peak hours, the quality of internet was very poor.

Fatigue results in diminished attention, caused by shift rotations patterns duration of swings, reduction in alertness. Participants identified that it was important to identify whether employees are fatigued or tired, rather than experiencing the symptoms of poor mental health, as sometimes workers may just need additional time to recover or get themselves together.

Participants described the effect of stigma and lack of support, which prevents employees from seeking help, particularly in a male-dominated environment. Participant #5 perceived that the offshore working environment still retained an air of machismo:

<https://doi.org/10.5281/zenodo.6790705>

“The cowboy macho culture that comes with that environment. You’re expected to behave a certain way in. Follow certain etiquette. And sometimes that can cause mental stressors on people who might not react as well. So I think having offshore psychologist plays a big part in that as well, making sure you have someone that you can talk to openly and not be judged”.

However, participant #7 was positive about the changes they had seen in the industry:

“There is still the “I’m okay, don’t worry”, but with the literature and presentations on board, generally we do tend to look out for each other more, and help our mates if we see that they are a bit down. Added to the fact that they know that they can talk to someone in confidence. I think at our place of work, the old adage of “toughen up” has been replaced with RUOK”.

Good employer-employee relations are vital to address problems in the work environment. It was identified that consistent top-down messaging about mental health remains important. The reframing of thoughts and thought processes may be beneficial in fostering self-awareness in order to identify the source of certain stressors which result in psychological distress, preventing negative thoughts from worsening. Participant #1 shared:

“Oftentimes it’s important to be able to recognise when you are in a state that you might need to catch yourself and reframe your thoughts, because oftentimes it’s the individual and they may not be willing to actually share that. So if you have, I guess we need some guidance material or something to be able to, you know, help manage our own and then obviously have a have another course of action to speak with someone, should we, you know, need additional assistance but yes, some practical ideas, I think to help you know, recognise when there is a problem”.

4. DISCUSSION

The focus group discussion provided insights into psychosocial stressors for offshore oil and gas employees. The findings revealed that rosters were a major theme in factors causing psychological distress and drew attention to the disruption in rosters and work cycles caused by the COVID-19 pandemic. In particular, rosters have been extended, where some participants were found to be working 5 weeks on and 5 weeks off, but during onshore leave would frequently be recalled offshore to work. Long and uneven rosters have been shown to result in anxiety (Berthelsen et al., 2015; Pavičić Žeželj et al., 2019; Torquati, 2019) and depression (Berthelsen et al., 2015; Torquati, 2019). In 2020, NOPSEMA issued a safety alert in response to roster changes brought in by moderators during the height of the pandemic. Concerns were raised around negative effects on employee mental health such as depression and anxiety, fatigue and heightened risk of major accidents. Accident involvement and incidents of near-misses (Nielsen et al., 2013) are a source of distress.

Contractors and casual workers are more likely to experience job uncertainty, which is a known cause of stress (James et al., 2018; Parker et al., 2017; Sutherland & Flin, 1989). Participant #4 stressed numerous times throughout the discussion that permanent contracts for workers would be more beneficial to mental health, a finding confirming the Sampson and Ellis (2020) study that looked at seafarer’s mental wellbeing.

Participant #1 explained that at one point, the rostered offshore cycle was 8 weeks, with 8 days for onshore leave, followed by another 8 weeks working offshore significantly affecting time spent at home with family and friends. This would impact the employee’s home life, where long periods away from home worsen the adaption period in the initial days of offshore leave (Mette et al., 2019),

<https://doi.org/10.5281/zenodo.6790705>

lengthen the recovery period (Parker et al., 2018), disrupt sleep cycles, as participant #1 worked 12 hour shifts that were blocks of day work followed by blocks of night work (Parkes et al., 2005) and cause fatigue, particularly for workers on night shift, which can result in a decrease in the enjoyment of home leave (Parker et al., 2018). This is partly due to the effects of a disruption in circadian rhythm, leaving employees feeling disconnected from their families (Parkes, 2005). The typical end of shift practice of calling family is made more stressful by intermittent internet access. As Henry et al. (2013) and Parker et al. (2018) found, mental wellbeing rests significantly on being able to communicate with family or friends. Not surprisingly, anxiety levels and stress increase when there are disruptions in these connections.

Fatigued or stressed employees should undergo a more gradual return to work, where the reduction in support from friends and family will have less of a devastating effect. Workers are sometimes given the opportunity to return to their accommodation to rest or have some breathing space. There are many inherent risks associated with offshore work, many of which are simply unavoidable. Participants identified further opportunities for improvement, including screening through psychometric testing, thus eliminating those not suited to the offshore work environment. A combination of psychology and business methods which are used when companies seek a particular set of skills and values or wish to assess suitability to a role, psychometric testing can accurately and validly capture valuable individual qualities such as resilience, coping skills and emotional intelligence (Caska, 2019). Participant #8 agreed that some aspects of offshore work needed to be acknowledged as being part of the job and that not all people may not be suited to the offshore work environment.

Constant changes are a factor that employees must adapt to and organisations are urged to highlight the fundamental ability for employees to have the capacity to deal with unexpected events and changes (Kuntz et al., 2016; Luthans et al., 2006, cited in Tonkin et al., 2018; Tonkin et al., 2018). Moreover, the long-term trajectory of the pandemic means that resilience is an essential personal factor that will be advantageous in uncertain times. Resilience is a central element of how organisations adapt, especially during uncertain environments (Tonkin et al., 2018). Participant #4 highlighted several times that the impermanent nature of the work was a major source of stress, a finding Matthews et al. (2021) reported, which resulted in employees questioning the reliability of the ongoing support of colleagues.

Organisations are encouraged to invest in resilience-building programs and interventions, while employees are urged to respond favourably to wellbeing and resilience-building projects (Tonkin et al., 2018), ensuring a shared obligation to commit to a supportive yet resilient work culture and environment (Sampson & Ellis, 2020). One suggestion was to incorporate resilience building as part of the toolkit, as a component of employee resources, with the aim of building on psychological endurance and adaptability to deal with unplanned negative events.

Premji (2018) states that employment may be considered precarious if there are irregular or unusual work schedules, a hazardous work environment, unreliable income or if employees are working for several different employers. Due to the COVID-19 pandemic, job security has become a major concern for offshore oil and gas workers, where border closures and travel restrictions have resulted in loss of employment.

Lack of support and stigma are still preventing employees from seeking help (Gardner et al., 2018), and it is crucial that employees are able to recognise the symptoms and signs of poor mental health or distress. Organisations can provide guidance material to employees to help them identify psychological stressors and to understand their symptoms, which would reduce stigma (Bowers et al., 2018; Henry et al., 2013). As well as awareness of mental wellness (participant #1), organisations should promote physical wellness (participants #3 and #5) along with opportunities for physical activity (Cotton, 2006),

<https://doi.org/10.5281/zenodo.6790705>

provide psychological support (participant #6) and stress management options. Participant #1 specifically made reference to what Greden et al. (2019) term 'primary prevention efforts' (p. 7), which are proactive measures designed to employees becoming exposed to a known hazard, or can aim to build resilience or tolerance. Talks can be given about many subjects such as sleep, stress and the management of stress, nutrition, physical exercise and peer support (Greden et al., 2019). Outcomes from Parikh et al.'s (2018) school-based depression prevention program showed an improvement in awareness and attitudes towards depression, as well as reducing stigma. The intervention also helped participants feel more confident in identifying depression in peers and increased intentions to seek help.

Rather than single out individual employees for interventions, which may raise concerns around stigma, or run the risk of missing an at-risk individual, Taubman et al. (2019) suggest that interventions should be universal, provided to all employees, regardless of whether they are suffering from or are likely to suffer from poor mental health. One of the most crucial elements of preventative measures is the reduction of stigma (Greden et al., 2010), and applying universal measures to the workforce reduces stigma to individual employees due to every member of staff being involved, while also avoiding the distress help-seeking in such a male-dominated environment may cause (Battams et al., 2014). The added benefit is that those who may already be suffering from poor mental health but do not recognise their symptoms as unusual or are reluctant to seek help are captured where they may have been missed (Taubman et al., 2019). Clarifying Greden et al.'s (2010) emphasis on reducing stigma, participant #5 confirmed that employees were expected to behave in a certain way in the male-led culture of the offshore oil and gas working environment, and that this affected their help-seeking behaviour, a finding published by Bjerkan (2010), Evans-Lacko & Knapp (2014) and Henry et al. (2013). Organisations are more likely to succeed tackling poor mental health in the workplace if they can reduce or eliminate stigma (participant #7), as well as see improved rates of the reporting of physical injuries (participant #8), supporting the findings of Bjerkan (2010) and Henry et al. (2013).

Suggestions for improvement focus on removing the stigma around mental health and seeking help for psychosocial issues, while also improving employee resilience, in keeping with organisational resilience. Behaviour modification, role-playing exercises, stress management, physical exercise and an improvement in the psychosocial workplace environment and culture were some other suggestions from participants (participants #1, #2, #3, #4 and #5).

While mental health screenings and programs are a direct cost to organisations, the indirect negative costs of not implementing proactive strategies for mental wellbeing are absenteeism, inability to focus, loss of production and a higher likelihood of making mistakes. The cost of screening for depression for example is significant, yet early recognition of poor mental health would reduce the costs associated with depression and is something workplaces have the potential to achieve, which would result in the prevention of depression as well as improved outcomes for those who already have depression. Furthermore, the financial burden from absenteeism, inattention at work and decreased levels of production are a far greater economic burden (Grazier, 2019). Poor mental health in the workplace has resulted in economic effects that Greden et al. (2019) find "complex and disturbing" (p. 5).

In other countries, such as the UK (Knapp et al., 2011) and Germany (Evans-Lacko & Knapp, 2014), screening in the workplace is cost-effective for organisations and healthcare systems alike. The numerous costs associated with depression alone are considerable yet underestimated (Grazier, 2019). However, increased economic participation from individuals with poor mental health would generate \$1.3 billion per year (The Productivity Commission, 2020).

The EAP has been highly effective and generally well-received throughout the pandemic employees (Dickson-Swift et al., 2014; Hughes & Fairley, 2021), where the program has adapted to include supportive solutions in keeping with social distancing and lockdown guidelines. Adoption of methods for virtual communication such as Zoom, counselling via video and telephone, a hotline for those in crisis, management-identified at-risk employees and text messaging (Hughes & Fairley, 2021). EAPs are effective in assisting employees to manage personal issues (Kirk & Brown, 2003). These programs should have the support of management, otherwise they are less likely to be welcomed by employees or result in successful outcomes. Interventions which enable employees to feel motivated and appreciated or present socialisation opportunities are more likely to be valued by employees (Dickson-Swift et al., 2014). Some workers are unaware of EAPs within their organisation, or may distrust their independence or effectiveness. In combination with embarrassment at being unable to cope and a tendency to internalise problems, EAPs are underutilised (Matthews et al., 2021).

5. CONCLUSIONS

The focus group discussion demonstrated that the main psychosocial risk factors and hazards for offshore oil and gas workers were changes in rosters, difficulties in returning to work, fear of accidents and reinjury and job uncertainty. Stigma was identified as a significant factor in preventing employees from seeking help for poor mental health. On an individual level, recommended actions included recognising when there is a problem and reframing thoughts and thought processes, which can be encouraged through organisational guidance material. On an organisational level, resilience-building interventions and proactive wellbeing programs as well as a supportive management are recommendations that emerged from this study.

Taking into account the increase in depression, anxiety and suicides in the FIFO industry over the past decade, this study is both timely and important. Furthermore, the economic toll of poor mental health can be mitigated through workplace interventions identified by industry professionals and are available for implementation within the offshore oil and gas working environment.

6. LIMITATIONS

The focus group was originally scheduled to last one hour. However, the multiple voices and viewpoints did cause the discussion to overrun by 30 minutes. Some questions therefore did not generate ample data to analyse. This was counteracted by asking each participant if they wanted to add anything to answer the questions where they had not given an answer when the transcripts were returned to participants for checking. The participants did not appear to be vulnerable to the negative aspects of focus groups noted by Carey and Smith (1994), such as the desire to conform or concerns around censorship. Conversation was free-flowing and relaxed, with participants respectful of others' wishes and attempts to speak.

REFERENCES

- Australian Government. Productivity Commission (2020). *Mental health inquiry report* (Volume 1 no 95). <https://www.pc.gov.au/inquiries/completed/mental-health/report>
- Battams, S., Roche, A. M., Fischer, J. A., Lee, N. K., Cameron, J., & Kostadinov, V. (2014) Workplace risk factors for anxiety and depression in male dominated industries: a systematic review. *Health Psychology and Behavioral Medicine: An Open Access Journal*, 2(1), 983-1008. doi: 10.1080/21642850.2014.954579
- Bergh, L. I. V., Hinna, S., Leka, S., & Jain, A. (2014). Developing a performance indicator for psychosocial risk in the oil and gas industry. *Safety science*, 62, 98-106. doi: 10.1016/j.ssci.2013.08.005

<https://doi.org/10.5281/zenodo.6790705>

- Berthelsen, M., Pallesen, S., Bjorvatn, B., & Knardahl, S. (2015). Shift schedules, work factors, and mental health among onshore and offshore workers in the Norwegian petroleum industry. *Industrial Health*, 53, 280–292. doi: 10.2486/indhealth.2014-018
- Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a nod to validation? *Qualitative health research*, 26(13), 1802–1811. doi: 10.1177/1049732316654870
- Bjerkkan, A. M. (2010). Health, environment, safety culture and climate – analysing the relationships to occupational accidents. *Journal of Risk Research*, 13(4), 445–477. doi: 10.1080/13669870903346386
- Bowers, J., Lo, J., Miller, P., Mawren, D. & Jones, B. (2018). Psychological distress in remote mining and construction workers in Australia. *Medical Journal of Australia*, 208(9), 391–397. <https://doi.org/10.5694/mja17.00950>
- Brannen, J. (2005) Mixing methods: The entry of qualitative and quantitative approaches into the research process. *International Journal of Social Research Methodology*, 8(3), 173–184. doi: 10.1080/13645570500154642
- Carey, M. A., & Smith, M. W. (1994). Capturing the group effect in focus groups: A special concern in analysis. *Qualitative health research*, 4(1), 123–127. doi: 10.1177/104973239400400108
- Caska, B. (2019). Psychometrics at work: How to ensure test results you can trust. *DBS Business Review*, 3, 73–81. doi: 10.22375/dbr.v3i0.60
- Commission for Occupational Safety and Health (2019). *Mentally healthy workplaces for fly-in fly-out (FIFO) workers in the resources and construction sectors – code of practice*. Department of Mines, Industry Regulation and Safety, Western Australia. <https://www.commerce.wa.gov.au/publications/mentally-healthy-workplaces-fly-fly-out-fifo-workers-resources-and-construction-sectors>
- Cotton, P. (2006). Management of injured workers with psychosocial barriers. *Australian family physician*, 35(12), 958–961. <https://search.informit-com.au.dbgw.lis.curtin.edu.au/documentSummary;dn=360983219989263;res=IELHEA>
- Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. SAGE Publications. http://link.library.curtin.edu.au/p?pid=CUR_ALMA51116644810001951
- Creswell, J. W. (2012). *Educational research: Planning, conducting and evaluating quantitative and qualitative research* (4th ed.). Pearson. http://link.library.curtin.edu.au/p?pid=CUR_ALMA51188663530001951
- Creswell, J. W. (2014). *A concise introduction to mixed methods research*. SAGE Publications.
- Crouch, M., & McKenzie, H. (2006). The logic of small samples in interview-based qualitative research. *Social Science Information*, 45(4), 483–499. <https://doi.org/10.1177/0539018406069584>
- Dickson-Swift, V., Fox, C., Marshall, K., Welch, N., & Willis, J. (2014). What really improves employee health and wellbeing: Findings from regional Australian workplaces. *International Journal of Workplace Health Management*, 7(3), 138–155. doi: 10.1108/IJWHM-10-2012-0026
- Evans-Lacko, S., & Knapp, M. (2014). Importance of social and cultural factors for attitudes, disclosure and time off work for depression: Findings from a seven country European study on depression in the workplace. *PLoS One*, 9(3). doi: 10.1371/journal.pone.0091053
- Flick, U. (2007). *Managing quality in qualitative research*. SAGE Publications. <https://www.doi.org/10.4135/9781849209441>
- Gardner, B., Kristie-Lee Alfrey, Vandelanotte, C., & Rebar, A. L. (2018). Mental health and well-being concerns of fly-in fly-out workers and their partners in Australia: A qualitative study. *BMJ Open*, 8(3). doi: 10.1136/bmjopen-2017-019516
- Grazier, K. L. (2019). The economic impact of depression in the workplace. In M. B. Riba, S. V. Parikh & J. F. Greden (Eds.), *Mental health in the workplace: Strategies and tools to optimize outcomes* (pp. 1–16). Springer. doi: 10.1007/978-3-030-04266-0_1
- Greden, J. F., Garcia-Tosi, R., & Harrington, A. W. (2019). Healthy minds at work: Challenges and strategies for businesses. In M. B. Riba, S. V. Parikh & J. F. Greden (Eds.), *Mental health in the workplace: Strategies and tools to optimize outcomes* (pp. 1–16). Springer. doi: 10.1007/978-3-030-04266-0_1

<https://doi.org/10.5281/zenodo.6790705>

- Greden, J. F., Valenstein, M., Spinner, J., Blow, A., Gorman, L., Dalack, G., Marcus, S., Kees, M. (2010). Buddy-to-Buddy, a citizen soldier peer support program to counteract stigma, PTSD, depression, and suicide. *Annals Of The New York Academy of Sciences*, 1201(1), 90-97. doi: 10.1111/j.1749-6632.2010.05719.x
- Henry, P., Hamilton, K., Watson, S., & McDonald, M. (2013). FIFO/DIDO mental health research report 2013. *Perth: Lifeline*.
- Hughes, D. & Fairley, A. (2021) The COVID chronicles: An Employee Assistance Program's observations and responses to the pandemic. *Journal of Workplace Behavioral Health*, 36(3), 177-196. doi: 10.1080/15555240.2020.1844569
- James, C., Tynan, R., Roach, D., Leigh, L., Oldmeadow, C., Rahman, M., & Kelly, B. (2018). Correlates of psychological distress among workers in the mining industry in remote Australia: Evidence from a multi-site cross-sectional survey. *PLoS ONE*, 13(12): e0209377. doi:10.1371/journal.pone.0209377
- Knapp, M., McDaid, D., & Parsonage, M. (2011). Mental health promotion and mental illness prevention: The economic case. Department of Health. <https://www.gov.uk/government/publications/mental-health-promotion-and-mental-illness-prevention-the-economic-case>
- Kirk, A. K., & Brown, D. F. (2003). Employee assistance programs: A review of the management of stress and wellbeing through workplace counselling and consulting. *Australian Psychologist*, 38(2), 138-43. doi: 10.1080/00050060310001707137
- Landon, L. B., Douglas, G. L., Downs, M. E., Greene, M. R., Whitmire, A. M., Zwart, S. R., & Roma, P. G. (2019). The behavioral biology of teams: Multidisciplinary contributions to social dynamics in isolated, confined, and extreme environments. *Frontiers in Psychology*, 10, 2571. doi: 10.3389/fpsyg.2019.02571
- Liamputtong, P. (2011). Virtual focus groups. In *Focus group methodology: Principles and practice* (pp. 149-164). SAGE Publications Ltd. <https://www.doi.org/10.4135/9781473957657>
- Long T., & Johnson, M. (2000). Rigour, reliability and validity in qualitative research. *Clinical Effectiveness in Nursing*, 4(1), 30-37. doi:10.1054/cein.2000.0106. <https://doi.org/10.1054/cein.2000.0106>
- Matthews, L. R., Gerald, J., & Jessup, G. M. (2021). Exploring men's use of mental health support offered by an Australian Employee Assistance Program (EAP): Perspectives from a focus-group study with males working in blue- and white-collar industries. *International Journal of Mental Health Systems*, 15(68), 1-17. doi: 10.1186/s13033-021-00489-5
- Mette, J., Robelski, S., Kirchhöfer, M., Harth, V., & Mache, S. (2019). Living the 14/14 schedule: Qualitative analysis of the challenges and coping strategies among families of offshore wind workers. *International Journal of Environmental Research and Public Health*, 16(2). doi: 10.3390/ijerph16020241
- Morse, J. M. (1994). Designing funded qualitative research. In Norman K. Denzin & Yvonna S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp.220-35). Sage.
- Moustakas, C. (1994). *Phenomenological research methods*. SAGE Publications, Inc. <https://www.doi.org/10.4135/9781412995658>
- Murray, P. J. (1997). Using Virtual Focus Groups in Qualitative Research. *Qualitative Health Research*, 7(4), 542-549. <https://doi.org/10.1177/104973239700700408>
- National Offshore Petroleum Safety and Environmental Management Authority (2020). COVID-19 roster changes. <https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A724699.2.pdf>
- Neis, B., Neil, K., & Lippel, K. (2020, April). *Mobility in a pandemic: COVID-19 and the mobile labour workforce* (Working Paper). <https://www.onthemovepartnership.ca/wp-content/uploads/2020/04/COVID-and-Mobile-Labour-Force-Working-Paper.pdf>
- Nielsen, M. B., Tvedt, S. D., & Matthiesen, S. B. (2013). Prevalence and occupational predictors of psychological distress in the offshore petroleum industry: A prospective study. *International Archives of Occupational and Environmental Health*, 86(8). 875-885. doi: 10.1007/s00420-012-0825-x
- Parikh, S. V., Taubman, D. S., Antoun, C., Cranford, J., Foster, C. E., Grambeau, M., Hunter, J., Jester, J., Konz, K., Meyer, T., Salazar, S., & Greden, J. F. (2018). The Michigan peer-to-peer depression awareness program: School-based prevention to address depression among teens. *Psychiatric Services*, 69(4), 487-491. doi: 10.1176/appi.ps.201700101

<https://doi.org/10.5281/zenodo.6790705>

- Parker, S., Fruhen, L., Burton, C., McQuade, S., Loveny, J., Griffin, M., Page, A., Chikritzhs, T., Crock, S., Jorritsma, K., & Esmond, J. (2018). *Impact of FIFO work arrangements on the mental health and wellbeing of FIFO workers*. Centre for Transformative Work Design. <https://www.mhc.wa.gov.au/media/2547/impact-of-fifo-work-arrangement-on-the-mental-health-and-wellbeing-of-fifo-workers-full-report.pdf>
- Parker, S. K., Morgeson, F. P., & Johns, G. C. (2017). One hundred years of work design research: Looking back and looking forward. *Journal of Applied Psychology, 102*(3), 403-420. doi: 10.1037/apl0000106
- Parke, K. R. (1992). Mental health in the oil industry: A comparative study of onshore and offshore employees. *Psychological Medicine, 22*, 997-1009. doi: 10.1017/S0033291700038563
- Parke, K. R., Carnell, S. C., & Farmer, E. L. (2005) 'Living two lives'. *Community, Work & Family, 8*(4), 413-437. doi: 10.1080/13668800500251755
- Pavičić Žeželj, S., Cvijanović Pelozo, O., Mika, F., Stamenković, S., Mahmutović Vranić, S., & Šabanagić Hajrić, S. (2019). Anxiety and depression symptoms among gas and oil industry workers. *Occupational Medicine, 69*(1), 22-27. doi: 10.1093/occmed/kqy170
- Premji, S. (2018). "It's totally destroyed our life": Exploring the pathways and mechanisms between precarious employment and health and well-being among immigrant men and women in Toronto. *International Journal of Health Services 48*(1), 106-127. doi: 10.1177/0020731417730011
- Ramsook, L. (2018). A methodological approach to hermeneutic phenomenology. *International Journal of Humanities and Social Sciences, 10*(1), 14-24. https://www.researchgate.net/profile/Leela-Ramsook/publication/323687948_A_Methodological_Approach_to_Hermeneutic_Phenomenology/links/5aa921fbaca272d39cd50403/A-Methodological-Approach-to-Hermeneutic-Phenomenology.pdf
- Sampson, H., & Ellis, N. (2020). Stepping up: The need for proactive employer investment in safeguarding seafarers' mental health and wellbeing. *Maritime Policy & Management, 1-13*. doi: 10.1080/03088839.2020.1867918
- Sandelowski M. (1993). Rigor or rigor mortis: The problem of rigor in qualitative research revisited. *Advances in Nursing Science, 16*. 1-8. doi: 10.1097/00012272-199312000-00002
- Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis: Theory, method, and research*. Sage. http://link.library.curtin.edu.au/p?pid=CUR_ALMA21101140930001951
- Smith, J. A., & Osborn, M. (2008). *Interpretative phenomenological analysis*. In J. A. Smith (Ed.), *Qualitative psychology: A practical guide to research methods* (p. 51-80). Sage Publications, Inc. http://link.library.curtin.edu.au/p?pid=CUR_ALMA21151713410001951
- Sotiriadou, P., Brouwers, J., & Le, T. A. (2014). Choosing a qualitative data analysis tool: A comparison of NVivo and Leximancer. *Annals of Leisure Research, 17*(2), 218-234. <https://doi.org/10.1080/11745398.2014.902292>
- Sutherland, K. M., & Flin, R.H. (1989) Stress at sea: A review of working conditions in the offshore oil and fishing industries, *Work & Stress, 3*(3), 269-285. doi: 10.1080/02678378908251563
- Taubman, D. S., Velyvis, V., & Parikh, S. V. (2019). Assessment and treatment of mood and anxiety disorders in the workplace. In M. B. Riba, S. V. Parikh & J. F. Greden (Eds.), *Mental health in the workplace: Strategies and tools to optimize outcomes* (pp. 1-16). Springer. doi: 10.1007/978-3-030-04266-0_1
- Tonkin, K., Malinen, S., Näswall, K., & Kuntz, J. C. (2018). Building employee resilience through wellbeing in organizations. *Human Resource Development Quarterly, 29*(2), 107- 124. doi: 10.1002/hrdq.21306
- Torquati, L., Mielke, G. I., Brown, W. J., Burton, N. W., & Kolbe-Alexander, T. (2019). Shift work and poor mental health: A meta-analysis of longitudinal studies. *American Journal of Public Health, 109*(11). doi: 10.2105/AJPH.2019.305278
- van Manen, M. (1990) *Researching Lived Experience: Human Science for an Action Sensitive Pedagogy*. The Athlone Press. http://link.library.curtin.edu.au/p?pid=CUR_ALMA51167764310001951
- Wyatt, M., & Lane, T. (2017). *Return to work: A comparison of psychological and physical injury claims. Analysis of the Return-to-Work Survey results*. Safe Work Australia. https://research.monash.edu/files/289621291/284492446_oa.pdfh

APPENDIX 1

Focus Group Interview questions

Positioning statement:

The offshore oil and gas working environment is unique and may hold many psychological stressors for employees. When considered together, these factors may pose a greater than average risk to employees' mental health and wellbeing. This discussion aims to facilitate the development of effective interview questions for the research participants of the study *Identifying Western Australian Offshore Oil and Gas Workers Mental Health Hazards and Risk Control Measures*.

Exploratory Questions:

1. In your experience are there any management practices or work organization practices that affect mining industry employees' mental health? If so please explain.
2. Do you know of any psychosocial obstacles for employees when returning to work following a work-related injury or ill health and if so how do you think that these can be mitigated?
3. What do you think are the main types of, and causes of, mental health stressors for offshore oil and gas workers? What risk control measures do employers use for these mental health stressors and how effective do you think they are?
4. If employees have poor mental health, how does this impact on offshore employees' health and their safety?
5. Do you know of any economic effects on organizations when employees have to deal with psychosocial issues and/or poor mental health? If so, what are the economic effects?
6. What do you think are the economic effects of having good employee mental health practices implemented by the company?
7. Regarding best practice, what do you find gives the best outcomes for promoting positive mental health for employees in the workplace?
8. Where do you think that there are opportunities for improvement in promoting positive mental health practices for contractors and workers with ongoing employment in the offshore oil and gas industry?

Exit statement:

Is there anything else that you would like to add to the discussion, or anything that you feel was missed?

AUTHORS

Emma D'Antoine, B. Soc. Sci. Psychology, Master Human Rights, Ph.D. candidate in the Department of Petroleum Engineering in the Western Australian School of Mines: Minerals, Energy and Chemical Engineering, Curtin University, researching psychosocial risk factors for offshore oil and gas workers. Member Occupational Health Society of Australia. Peer reviewer for *Journal of Occupational and Organizational Psychology* and *Journal of Management and Organization*.



<https://doi.org/10.5281/zenodo.6790705>



Dr. Janis Jansz, is an Associate Professor in Occupational Health, Safety and Environmental Health in the Western Australian School of Mines: Minerals, Energy and Chemical Engineering at Curtin University in Western Australia and a Professor at the Xi'an University of Science and Technology, China. She also works for the Healthforce Group. Janis is the Director of the World Safety Organization National Office for Australia and Vice President of the Occupational Health Society of Australia. She has been awarded Life Membership of the Australian Institute of Health and Safety for many years of work improving, teaching and conducting research to advance occupational safety and health practices and for taking a leadership role the safety and health profession.

Professor Ahmed Barifcani, BSc. MSc, PhD in chemical engineering from University of Birmingham (UK), Fellow (FIChemE) and Chartered Scientist (CSci) of the Institution of chemical engineers. Also, an Associate Professor in the Western Australian School of Mines: Minerals, Energy and Chemical Engineering at Curtin University in Western Australia. Over 100 peer reviewed publications related to research in the areas of CO₂ capture, flow assurance, wettability, low temperature separation processes LNG and sour gas separation. Supervision or and co-supervision of 38 PhD and MSc HDR students. Winner of the Curtin commercial innovation award in 2009 first prize.



Dr. Sherrilyn Mills, Bachelor of Business (HRM, IR), Master OSH, PhD has been involved in workers' compensation, injury management, vocational rehabilitation and occupational health and safety since 1997. Together with her extensive research and PhD on individual, organisational and psychosocial factors, that prevent return to work and post workplace injury, Sherrilyn is known as an authority in her field providing transformational change in culture, systems, engagement and in people management. Sherrilyn has established significant experience and credibility throughout her career predominantly consulting with a variety of national companies to prevent and mitigate the effects of ill-health and injuries in sectors including government, oil and gas, mining, transport and engineering.

Distinguished Professor Mark Harris, John Curtin Distinguished Professor in the School of Economics and Finance (Faculty of Business and Law), Co-Director of the Health Economics Cluster, Member of the Editorial Board of the Journal of Risk and Financial Management and has journal refereeing responsibilities on eleven other journals. Mark's research and publications have generally been in various areas of applied economics and econometrics. Mark has taught the unit of Introductory Econometrics. Publications have generally been in various areas of applied economics and econometrics.



Dr. Christopher Lagat, BSc. in Civil Engineering, MSc and PhD in Petroleum Engineering, Chartered Professional Engineer (CPEng) in Australia's National Engineering Register (NER) and a Member of the Institution of Engineers Australia (MIEAust). Has over 15 years industrial experience in oil and gas reserves evaluation, determination of potential productivity and profitability of oil and gas discoveries, civil and structural engineering design, construction supervision, projects commissioning, project management, procurement, contracts management, health, environment and safety areas. His research areas include reservoir engineering, drilling engineering, CO₂ capture and sequestration, flow assurance, health and safety, decommissioning of oil and gas fields.

<https://doi.org/10.5281/zenodo.6790705>

D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M. & Lagat, C. (2022). Effects of the COVID-19 pandemic on employees' psychological health in the offshore oil and gas industry and opportunities for improvement. *World Safety Journal*. 31(2), 1-14.
<https://doi.org/10.5281/zenodo.6790705>



Regular Article

COVID-19 and offshore oil and gas workers: The role of personality

Emma D'Antoine^{a,*}, Janis Jansz^{a,b,d}, Ahmed Barifcani^a, Sherrilyn Shaw-Mills^{a,b}, Mark Harris^c, Christopher Lagat^a^a WA School of Mines: Minerals, Energy and Chemical Engineering, Curtin University, Bentley, W.A., 6102, Australia^b Healthforce Group, PO Box 2061, High Wycombe, W.A., 6067, Australia^c School of Economics, Finance and Property, Curtin University, Bentley, W.A., 6102, Australia^d Xi'an University of Science & Technology, 55 Yanta Road, Xi'an, 710054, Shaanxi, PR China

ARTICLE INFO

Keywords:

Personality

Big five personality model

Psychosocial stress

Offshore oil and gas

ABSTRACT

This qualitative study aimed to identify mental health hazards in the offshore oil and gas industry, as well as the role of the personality types of the Five Factor Model (FFM) in coping with these stressors. A focus group with 8 participants and a pilot study with 5 participants were conducted. Results showed that several stressors are currently present for Australian offshore oil and gas employees, in particular COVID-19 and the resulting negative effects on rosters, working hours, job security and time spent away from home. Other stressors revealed by participants were lack of space, working in a high-risk environment, stigma, helicopter travel and pressure to keep up with production. Poor safety behaviours were associated with neuroticism, extraversion and openness, while risk avoidance appear to be associated with agreeableness and conscientiousness. Tolerance to shift work was positively related to extraversion, yet negatively associated to neuroticism. Furthermore, neuroticism showed a negative association with help-seeking and productivity, as well as higher levels of concern relating to COVID-19 and job uncertainty. As personality traits are enduring throughout life, it is vital that employees are managed effectively through workplace interventions so that they are able to cope effectively, particularly during stressful events.

1. Introduction

Evidence shows that personality, along with motivation and attitude, is of major interest to employers (Green et al., 1998). It is unlikely that personality traits change drastically after early adulthood (Cubel et al., 2016) and after 30 years of age there is very little change (McCrae & Costa, 1994). Any change appears to be gradual and influenced mainly by physiological development rather than life events and experiences (McCrae & Costa, 1999). It is vital to understand the impact of personality traits and their effects on several aspects of individuals' work life. For example, personality has been found to have as much of an effect on earnings as cognitive abilities (Cubel et al., 2016), suggesting that it can independently predict income.

When considering employee health, mental wellbeing must be taken into account along with physical wellness. The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA)'s guidance notice was issued in 2021 in response to the increasing psychosocial hazards for oil and gas workers employed on

offshore facilities. Additionally, the war in Ukraine has driven oil and gas prices upward, resulting in a focus on increasing the oil and gas supply from non-Russian countries such as Australia. Furthermore, as the COVID-19 pandemic continues, the resulting issues that have affected offshore oil and gas workers are brought to light from the results of a small focus group and pilot study. Research has shown that personality traits often predict health-related behaviours (Airaksinen et al., 2021). Recently, there has been research examining the effects of COVID-19 on offshore oil and gas workers. This article aimed to highlight the importance of how personality traits can affect mental health and aspects of work, particularly in high stress environments. Travel restrictions and border closures due to COVID-19 have worsened job security and uncertainty around employment is significantly associated with moderate to very high levels of mental distress (James et al., 2018). The integration of personality in considering job-person fit in industry in order to promote favourable mental health outcomes is important. For example, there is evidence that certain personalities are more suited to shift work (Berthelsen et al., 2015; Parkes, 2002; Saksvik et al., 2011;

* Corresponding author. Curtin University of Technology, Kent Street, Bentley, 6102, WA, Australia.

E-mail address: emma.dantoine@postgrad.curtin.edu.au (E. D'Antoine).<https://doi.org/10.1016/j.ssho.2023.100402>

Received 18 October 2022; Received in revised form 4 December 2022; Accepted 14 January 2023

Available online 17 January 2023

2590-2911/© 2023 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Tamagawa et al., 2007) and are more susceptible to poor sleep and sleep disturbances (Hennig et al., 1998; Parkes, 1993, 2002). Personality traits have also been linked to help seeking and coping behaviours. (Beus et al., 2015; Parkes, 1986). This article investigates personality traits of the FFM (Costa & McCrae, 1992) in relation to safety behaviours, productivity, accident involvement, shift work and sleep and management by reviewing the relevant existing literature. It also examines the possible role of personality in coping with the effects of the COVID-19 pandemic.

2. Research aim/purpose

The aim of the literature review was to determine the role of personality, in particular the personality types of the FFM, in coping with these stressors. The aim of the focus group and pilot study research was to identify mental health hazards in the offshore industry.

3. Method

3.1. Procedure

A literature review was carried out to locate articles on personality, COVID-19 and the offshore oil and gas working environment. This was followed by the recruitment of participants via purposive sampling for the focus group study, which involved approaching the relevant representatives of government and regulatory bodies as well as offshore energy companies. Two of the employees were permanent workers, one was a casual worker and one was a contractor. The pilot study involved 5 participants and asked questions formulated from the themes which emerged during the exploratory nature of the focus group.

The combination of these methods of analysis aimed to increase validity in the findings (Greenwood et al., 2017). Both the focus group and pilot study participants were recruited through purposive sampling (Creswell, 2012). Ethics approval to conduct this research was granted by the university Human Research Ethics Committee (HREC) (Ethics Approval number HRE2021-0512). Participants' identities were protected through the allocation of a number between #1 to #13. Likewise, no organisations were identified in either the focus group or pilot study.

The focus group session was recorded and transcribed. Each participant's transcript was read several times and sent back to respondents for their review and comment, ensuring the validity of analysed data and that it was genuinely representative of the phenomena the study was proposing to measure (Birt et al., 2016; Long & Johnson, 2000), adding to the study's credibility (Ramsook, 2018). Results for the focus group were analysed through NVivo software. The qualitative data was separated according to questions asked within the session. Each of these then created main themes and patterns. Word clouds showed the most frequently mentioned words for each question, which helped to form an idea of the commonly-held thoughts and experiences of the participants and enhanced the validity of the research findings.

3.2. Literature review

The narrative systematic review of literature was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) checklist (Moher et al., 2009) and conducted through a university library catalogue. Further articles were located through the recommendations of the journals and through reviewing the reference lists of identified articles. A total of 357 articles were reviewed and 68 of these publications were deemed the most suitable to be included.

3.3. Focus group

To provide insights (van Manen, 1990) and investigate psychosocial hazards on offshore oil and gas facilities, a focus group session was

conducted. Focus groups aim to provide researchers with the opportunity to consider the experiences of multiple voices at one time (Smith et al., 2009) and are able to be used alone as a method of analysis (Flick, 2007). Furthermore, as qualitative research requires a group of varied and diverse individuals, a focus group method was selected to fulfill quality criteria (Flick, 2007). Individuals with specialist knowledge of the phenomena under investigation were recruited (Creswell, 2012). Recruitment of participants was based on their employment position. There were two male representatives of industry authorities: one Manager of a regulatory body and one Inspector of a government agency. Other participants were a male Health, Safety, Security and Environment (HSSE) Advisor, a female Offshore and Maintenance Crewing Manager, one male casual worker, one male contract worker and two male permanent employees. For the pilot study, five Western Australian offshore oil and gas workers took part in one-to-one interviews via video link. Interviews took between 15 and 45 minutes.

The group session was held over Microsoft Teams, affording greater privacy to participants, thereby facilitating a reduction in personal discomfort (Liamputtong, 2011). The questions asked within the focus group aimed to gather information to enable the formulation of further questions for a wider study. Questions were semi-structured and open-ended, providing a more holistic picture than a questionnaire (Brannen, 2005). Keeping within the recommendations of several researchers (Creswell, 1998; Crouch & McKenzie, 2006; Morse, 1994; Smith & Osborn, 2008), a sample size of eight participants was used. NVivo software was used to identify emerging themes from the focus group, a recommended method of analysis for semi-structured interviews and interpretative methods of investigation. Data was able to be sorted through categorical classification via coding and sub coding, assisting the generation of emerging themes. Findings were then compared with the literature review results for similarities, which formed the questions for the pilot study. Focus group questions are presented in Appendix 1.

3.4. Pilot study

The interview questions formed on the basis of the literature review and focus group findings aimed to address a number of psychosocial risk factors identified during these processes. There were four male participants and one female participant. Two male respondents were engineers, one was a General Service Operator and one was an Operations Representative. The female participant was a Graduate Engineer. All respondents were permanent employees. Ages ranged between 26 and 55 years of age. Length of experience range was 2–20 years. A human-centric approach was utilised in the analysis of qualitative data to provide a richer and more profound understanding of how personal and extraneous factors influence the mental health of offshore oil and gas workers. Pilot study questions are in Appendix 2.

4. Results

4.1. Summary

The FFM organises personality traits along the fundamental dimensions of Openness, Conscientiousness, Extraversion, Agreeableness and Neuroticism. Openness refers to broadmindedness, intelligence and curiosity. Conscientious individuals abide by rules, are thorough and responsible, and endeavour to avoid risk. Extraversion is characterised by sociability, cheerfulness and enthusiasm and agreeableness refers to cooperation, selflessness and prosocial behaviours. Individuals high in this trait seek to facilitate and protect interpersonal relationships (McCrae & Costa, 1987). Finally, neuroticism is characterised by emotionality, anger, irritability (Lahey, 2009), excitability (Buck, 2011) and a proneness to anxiety and stress (McCrae & Costa, 1987).

Barrick and Mount (1991) consider the FFM to be robust enough to provide a relevant framework to develop and examine theories of

personalities and how they relate to a diverse range of measures in the field of organisational psychology, particularly the selection of personnel, performance reviews and training and development programs. Findings from the literature review are summarised in Table 1 and in Fig. 1.

4.2. COVID-19

COVID-19 was a strong theme in the interviews, particularly in the pilot study. Participant #12 lamented the difficulty in being able to return home due to the quarantine requirements at the beginning of the pandemic:

'A number of people that were away from their homes and their families and even beyond that, the vaccination debate and things like that ... that came into it. But more so, you asked the question about myself, I spent 7 months away from home last year, due to the borders being put up'

Table 1
Personality traits and their association with work stressors.

Personality Trait	Effect	Author
Big 5 personality types		
Neuroticism	Belief they cannot control their environment	Buck (2011)
	Less able to complete tasks	Buck (2011)
	Easily distracted by stimuli/preoccupied with external stressors	Buck (2011); Eysenck (1962)
	Poor safety behaviours	Beus et al. (2015); Gao et al. (2020)
	Less able to form constructive interpersonal relationships	Beus et al. (2015)
	Sleep problems and poor sleep quality	Hennig (1998); Parkes (2002)
	Poor adaption to circadian disturbances	Hennig (1998)
	Negative emotions (e.g., anger)	Beus et al. (2015)
	Less able to use effective coping strategies	Beus et al. (2015); Lahey (2009)
	Intolerance to shiftwork	Beus et al. (2015); McCrae & Costa (1996); Parkes (1996)
Extraversion	Making irrational decisions	Tamagawa et al. (2007)
	Detrimental to productivity	Beus et al. (2015)
	Poor safety behaviours	Cubel et al. (2016) Chen and Chen (2013) Beus et al. (2015); Gao et al. (2020)
Openness to experience	Involvement in accidents	Clarke and Robertson (2008)
	Easily distracted	Buck et al. (2011)
	Higher tolerance of shift work	Saksvik et al. (2011)
Conscientiousness	Frustration with safety procedures	Beus et al. (2015)
	More likely to engage in deviant work behaviours	Beus et al. (2015)
	Broad-minded	Barrick and Mount (1991)
Agreeableness	Lower rates of accident involvement	Buck et al. (2011)
	Risk avoidance	Beus et al. (2015); Gao et al. (2020)
	Predicts compliant safety behaviour	Breivik et al. (2020)
	Achievement-oriented	Cubel et al. (2016)
Agreeableness	Lower rates of accident involvement	Buck et al. (2011)
	Risk avoidance	Beus et al. (2015); Gao et al. (2020)
	Unlikely to engage in risky safety behaviours	Breivik et al. (2020)
	Motivated to get along with others	Beus et al. (2015); Buck (2011) Judge et al. (2002)

Given that nearly 80% of over 5000 participants in Newby et al.'s (2020) Australian study on mental health impacts of the pandemic reported moderate to severe uncertainty about the future, and that the oil and gas industry in particular has been significantly impacted by uncertainty and economic decline (Feringa & Wentzel, 2021), it is not surprising that a major theme emerging from both the focus group session and pilot study interviews was job insecurity and uncertainty. Participant #11 expressed anxiety around job security and permanence:

'I think like most people, you start to feel less comfortable in your position, you start to question your longevity in your job. I think in engineering, we start questioning, you know, what place we might have and for how long. It can be a little bit scary'

Similar to Newby et al.'s (2020) findings, concerns around employment continuity and financial status add to anxiety levels. Participant #12 stated:

'There's been a general anxiety about the work and your ability to go to work, and that situation that I've described to you before ... there's a level of anxiety - you have to apply for a pass or if people come home, would I be able to go back to work again? You know, there was people off for extended periods of time and that whole sorta 6 or 7 months away in a totally different environment to your home environment and then readjusting back into your home environment, there's been an impact there'

When asked whether the COVID-19 pandemic had impacted their mental health, participant #11 explained that the past two and a half years had created concerns about the future of oil and gas and the ability to continue to provide service and expertise as an engineer:

'Absolutely, it is scary. And you know I'm the first one to not downplay that because it's stressful for everyone, you know, if you're studying, if you've just finished studying, if you've been in the industry for like 15 years like me it's still scary. It's a worrying time for a lot of people, a lot of families, a lot of mums and dads, a lot of professionals, it's a scary time'

In addition, it emerged that the global instability from the war in Ukraine was a cause for concern about the oil and gas industry's longevity for this participant. Being unable to travel internationally to work on different facilities was a comment made by participant #8. In the early days of the pandemic, quarantining for two weeks had been particularly difficult.

4.3. Interpersonal

One of the themes which emerged from the research data was the lack of personal space on offshore facilities. Shared accommodation was mentioned by participants #12 and #13, the latter describing the living space as 'less than favourable'. Participant #12 stated:

'I think it's a close environment that we work in, so on the facility that I'm in is that quite often you'll have to share a cabin. That environment where you just you haven't got somewhere to go of a night, like you're sharing your cabin with another person, the mess room is full, it's quite confined living space. You go to the gym at any particular time, it's only a small gym, there's any number of people that are there that are climbing over the top of each other. There's a lack of real estate to put a decent sized gym in and to have your own cabin, or to have an extended TV room'

Similarly, participant #10 drew attention to the constraint felt by offshore surroundings, speaking about the differences between offshore and onshore FIFO work:

'You're on board and it can be rough and it can be windy and wild and it's not like you can just ... we spoke about it before ... that confinement. You're on a mine site, I've never worked on a mine site, I'm sure they're quite confined as well but you can go for a walk for a couple of hundred metres and chill out'

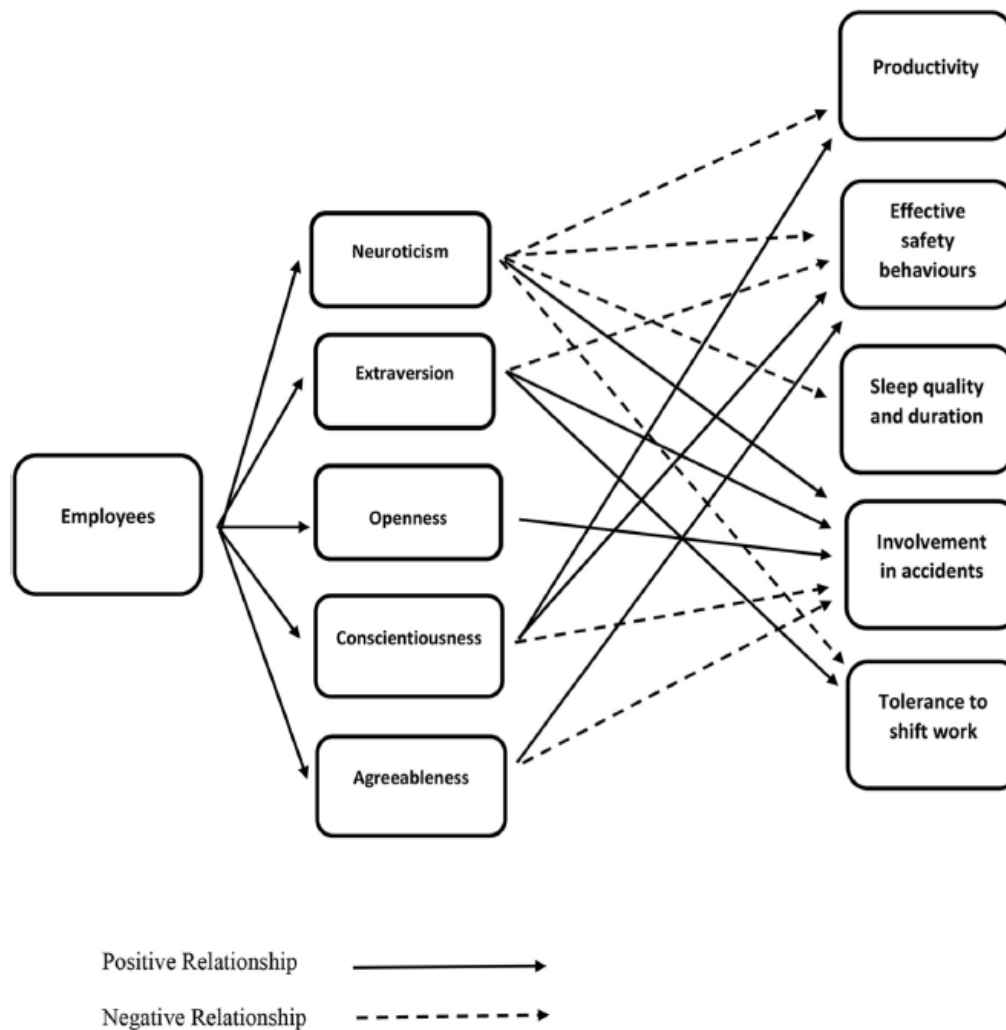


Fig. 1. Big 5 personality traits and their relationship with work.
 Note: Adapted from “Mediation models including region-level Big Five sub-facets for the prediction of regional differences in well-being and personality traits related to psychological adversity”, by M. Obchonka et al., 2018, *Journal of Personality and Social Psychology*, 115(5), 903. <https://mpra.ub.uni-muenchen.de/89645/>.

4.4. Shifts and sleep

Early in the pandemic, travel and quarantine requirements meant that longer hours and compacted rosters were introduced for offshore workers. In 2020, NOPSEMA were compelled to release an official Safety Alert regarding adverse effects on the mental health of employees, including fatigue and an increased risk of involvement in major accidents. As participant #13 stressed, the offshore oil and gas industry is a highly stressful working environment:

‘There is this perception of overall stress associated with work with a major hazard facility. I think, yeah, just some level of stress associated with the constant use of more hazardous ways of transport, like helicopters and in general being present all the time and the major hazard facilities. It’s noisy. And when you go to all the trainings and inductions, they constantly remind you that it can end with a crash. And I think when people constantly tell you about that, then it takes the toll’

Participant #5 explained the impacts the pandemic had on rosters:
‘You’ve got longer hours, longer shifts. I’ve spoken to some people who are doing 5 weeks on five weeks off and then during that five weeks off they’ll

still get a call going we need you out for a couple of weeks and they would get compensated for that additional work that they do’

Similarly, participant #1 drew attention to the impact of roster changes:

‘We’ve had a lot of people having to do over cycle, and hence maintaining that roster, they’ll need to minimize their time at home - if they’re able to get home at all. A large portion of our workforce is from the Eastern states, so they’ve had to have incentives to either move over to Western Australia to be able to mobilise back offshore or they’ve needed to stay in Perth away from their families, you know for months and months at a time, you know 9–10 months because of that border closure’

Participant # 10 noted the long working hours:

‘I mean, you know, usually work a 12-hour day. I’ve been largely white collar in supervising or managing, so you can actually spend a lot more hours. You know you can be there 12–14, you know, 15 hours a day’

4.5. Help seeking

Help-seeking behaviours are influenced by several factors, including stigma and a lack of support (Gardner et al., 2018). At the present time, it is of particular importance that employees are comfortable with seeking help. Taking into account the role of personality and how it affects mental health during the COVID-19 pandemic can help to personalise treatments for mental health issues (Proto & Zhang, 2021). The willingness to seek help or support can be influenced by many factors. The culture of a workplace and attitudes of colleagues, particularly in a male-dominated environment, can thwart the process of seeking help for psychological issues (Henry et al., 2013; Ross et al., 2019). Extraverted and optimistic individuals have been found to be more likely to seek support, whereas individuals with high levels of pessimism tend to use avoidance coping strategies rather than problem solving resources. What is concerning is that Kulip et al. (2022) found both problem-oriented and emotion-oriented coping styles appeared to significantly predict fear around COVID-19.

Help-seeking behaviour for stressors which affect the family have been associated with lower family-work interference (Thompson et al., 2007). For direct coping, extraverts actively uphold adaptive coping strategies, while those high in neuroticism tend to employ reality-distorting strategies, as well as withdrawing and self-blaming (Parkes, 1986). In general, individuals with high levels of neuroticism are generally less able to use effective coping strategies (Parkes, 1986). Being unable to cope, or not finding the right ways in which to cope, was mentioned by participant #10, in some cases with devastating consequences:

'I hear a lot, lot more suicides so, you know ultimately, yeah, mental health untreated and people give up and end up, you know, becoming suicidal and killing themselves so ... it's surprising how many people still, you know, take their lives 'cause you know they don't find any avenues to better cope with it so' ...

Consistent with research findings that FIFO workers are at increased risk of suicide (Parker et al., 2018; Western Australia State Government, 2015), participant #12 went on to reveal that they had been personally affected by suicide:

'And we've experienced, you know ... we've had guys that have worked out there, you know, like one bloke that I know of, he was a rough n' tough scaffolder back in the day who took his life, you know and I'm in a job because a bloke, the person that had the job that I had took his life. So, it's a live topic out there'

In this study, participant statements echo Ross et al.'s (2020) findings, who reported that 65% of the participants in their study knew someone who had attempted to end their life. Furthermore, 69% of the participants had known someone who had actually died by suicide and 2% of respondents had experienced recent thoughts of suicide. Examining the GAT (General Awareness Training) component of MATES in Energy, Ross et al. (2020) found a significant increase in suicide awareness and literacy, knowledge, and improvements in attitudes to help-seeking and help-giving. Participant #12, who worked for a large oil and gas company, stated that there was an online learning module related to mental health that the company had provided access to. However, this participant strongly believed that Mental Health First Aid should be compulsory and specifically tailored to the oil and gas working environment:

'I think in industry, in the oil and gas industry we need to be getting, like it's compulsory for me to do my 1st Aid ... St. John's. I think it should be compulsory to do Mental Health 1st Aid. Some people might argue that it's not their cup of tea or they haven't got the skill set for it or whatever, that's fine. Further to that, we started to put programs in place where you'd have people come and visit the workplace, they'd roll out a program, they'd do some video or have a discussion and we've got to

reinvigorate some of that stuff that's particular to the oil and gas industry, if you like. Because even the program that we had, that was tailored for the mining industry. So I think something which is tailored for oil and gas needs to happen'

Participant #12 confirmed that they were referring to the Mates in Mining program, which has its roots in Mates in Construction. The program was created to address the high rates of suicide in the construction industry and has successfully branched into other industries and includes Mates in Energy (Ross et al., 2020), a multi-level intervention aimed at preventing suicide in the energy industry.

A mental health first aid program brought in to address the risks for offshore workers on the Hibernia platform off the coast of Newfoundland, Canada has been successful in promoting positive mental health and wellbeing for offshore workers, training workers in mental health first aid. The program's effectiveness is due to valuable input from workers, rather than being fully devised by management and has been instrumental in enabling conversations around mental health to take place (Boyko, 2017).

4.6. Productivity

Neuroticism has a significant negative effect on productivity (Cubel et al., 2016), compromising performance by undermining the ability to concentrate on tasks, particularly when under time constraints. Employees with higher levels of conscientiousness appear to perform better on these tasks. Barrick and Mount's (1991) study of a variety of occupational groups included professionals (such as engineers), managers (from foremen to chief executives) and skilled/semi-skilled workers. Conscientiousness was found by the researchers to be the strongest predictor of performance at work across occupations, implying it to be a desirable trait in organisational leaders. They also found that extraversion was a predictor of job performance, likely due to higher levels of interpersonal skills found in extraverts.

As noted by participant #1, maintaining productivity has remained central to organisational strategies in managing possible economic losses:

'I think given the sense that businesses need to, they have their businesses make sure that we're continuing to produce and recognizing things that come in from total left field, like COVID, then you have to sometime manage that and get back to steady operations as best you can'

However, through compliance monitoring, NOPSEMA (2021) identified several concerns at the operational level, including the misuse of management of change practices which aimed to minimise risks to the organisation instead of managing risks to employees, potentially indicating the prioritisation of reducing economic risk rather than giving precedence to safety. For example, prioritising operations that lead to an increase in production in place of routine maintenance which lead to unsatisfactory deterioration and corrosion. Pressure to fulfill performance outcomes was stated as being a major stressor by participant #8:

'I would argue that possibly, controversially, that a lot of the perceived pressure, which I should point out which is real, is absolutely an important part of how a lot of accidents happen. People perceive that they have to get their job done. They don't want to speak up, they want to get after it. They want to be as fast as they can, as quick as they can. They don't realize we really, that's secondary people not getting hurt, but that comes from lump sum contracts. The companies are letting lump sum contracts and the contractors that bid on them as cheap as possible and the faster they go the more money they make'.

4.7. Management

Managers not only have to find the right worker for the position but must also consider how to manage employees in a contextual sense.

What may be beneficial in one situation may not be useful in another, yet effective leadership must also be sustainable across cultural backgrounds and situations (Kaluza et al., 2012). Organisational management must ensure that adequate steps are taken to address stigma around mental health issues, as negative attitudes regarding poor mental health and help seeking are a significant source of psychological distress (Bowers et al., 2018) and affect help-seeking behaviours (Bowers et al., 2018), particularly in a predominantly male environment, which is linked to a higher suicide risk (Ross et al., 2020), and where asking for help might be viewed negatively (Henry et al., 2013). A statement by participant #7 supported this finding:

'I think education's one of the big ones. And getting rid of the stigma. That's probably one of the biggest things, especially with men, is not just recognizing mental health, but dealing with it. Nobody wants to talk about it. It's the troll under the bridge isn't it?'

Perceived stigma has also been associated with suicidal risk (Parker et al., 2018). Consistent with findings from Bowers et al. (2018), who found that 38.5 percent of their study participants found a lack of available help to be a cause of stress; concerns around where to go and who to speak to for help were a further source of stress for workers:

'I think there's still a stigma of mental health and who to approach. What if you approached like the wrong person and you say everything or how you're feeling and they don't care, you know?' (Participant #9)

Further suggestions for reducing stigma were made by participant #1:

'I think there just needs to be some well thought out practical messages. Things that I guess ... ideas that can be shared out here. Practical thoughts, as in to help people control potentially their anxiety, their emotion. Sure, we have, you know, psychologists who can provide that, but oftentimes it's important to be able to recognize when you are in a state that you might need to catch yourself and reframe your thoughts, because oftentimes it's the individual and they may not be willing to actually share that. So if you have, I guess we need some guidance material or something to be able to, you know, help manage our own and then obviously have a have another course of action to speak with someone, should we, you know, need additional assistance but yes, some practical ideas, I think to help you know, recognize when there is a problem'

This was supported by participant #5, who agreed that the promotion of self-awareness and training individuals to recognise the signs of poor or worsening mental health, as well as what action to take, would help to address the issue. At an organisational level, participant #6 recommended the need to focus on a risk-based approach to the management of psychosocial risk factors and hazards:

'What's the likelihood of exposure to these psychosocial hazards that have the potential impact on people's mental health and then ensuring that we've got higher order controls that are established that our primary and preventative in nature so that we're not waiting till after someone's been exposed to a hazard and then providing the psychological support, for example. So, it's an organizational, risk focused approach in addition to the work that we can do at an individual level around education, resilience, providing those additional EAP psychological supports as well'

5. Discussion

Airaksinen et al. (2021) linked personality to levels of precautions taken against COVID-19, finding that higher levels of conscientiousness, openness and neuroticism predicted precautionary health behaviours in older adults. Individuals with high levels of neuroticism have a higher likelihood of holding fears about COVID-19 than other Big 5 personalities (Aschwanden et al., 2021) and experienced higher levels of stress throughout the pandemic (Itebeke & De Witte, 2021; Liu et al., 2020).

Aschwanden et al. (2021) also found that neuroticism was associated with higher levels of uncertainty during the pandemic. Coping and resilience in the face of stressful events follows a similar pattern, where high levels of openness, extraversion, conscientiousness and agreeableness and low levels of neuroticism have been linked to more favourable outcomes (Oshio et al., 2018). The anxiety and worry that manifest as part of the neuroticism trait are not conducive to the nature of resilient individuals. The COVID-19 pandemic adds additional challenges to other personality traits of the FFM. Extraverts may have struggled with isolation requirements and lack of social contact, experiencing a marked decrease in mood during the progress of the pandemic. Improved mood was found amongst individuals high in agreeableness and conscientiousness, with the latter being significantly positively related to higher involvement in health-focused activities during the outbreak (Rettew et al., 2021).

Individuals high in agreeableness seek to facilitate and protect interpersonal relationships (McCrae & Costa, 1987) and are unlikely to compromise group cohesion by engaging in risky safety behaviours (Beus et al., 2015; Buck, 2011). Furthermore, high levels of agreeableness are associated with the motivation to foster meaningful interpersonal relationships (Judge et al., 2002). Individuals high in neuroticism are more prone to self-consciousness, hostility and vulnerability (Lahey, 2009). They are less able to successfully complete work tasks and less able to form constructive interpersonal relationships, particularly in stressful environments or situations (Beus et al., 2015). The ability to create and maintain harmonious working relationships and fulfill tasks would be facilitated by the act of working safely, yet this is more difficult to achieve for those high in neuroticism due to a preoccupation with external stressors and negative thoughts, which ultimately place strain on interpersonal relationships at work and result in distracted thought processes. Consequently, this affects safety outcomes, a finding previously identified in Eysenck's (1962) research, where 'attention to task' may mediate the relationship between neuroticism and accidents (cited in Hansen, 1989). However, Chen and Chen (2013) emphasise the lack of positive research into neuroticism in the workplace, particularly from a psychophysical perspective. While employees with high levels of neuroticism have a heightened response to negative physical stimuli, this can nevertheless be successfully managed in the workplace. In fact, neurotic personalities can potentially benefit organisations. Leung et al.'s (2014) study found that those classed as innately neurotic reacted to problems with more creative solutions when they had remembered a distressing event. However, in Clarke and Robertson's (2008) study, while neuroticism was associated with accident involvement, there was evidence that this relationship varied across situations. Barlow et al. (2014) suggest the potential of neuroticism as an emotional condition, raising the possibility that workers with high levels of this trait may be more manageable than previously considered. This suggests that they may be more receptive to direct treatment, implying there may be a significant impact at a public-health level, a concern which Lahey (2009) considers to be of top priority in research. Mindfulness-based cognitive therapy research by Armstrong and Rimes (2016) further supports the theory of neuroticism as malleable and responsive to intervention.

Positive associations have been found between extraversion and neuroticism and accidents (Lajunen, 2001). However, it must be noted that Clarke and Robertson (2005) found that extraversion was only linked to traffic and not occupational accidents and Henning et al. (2009) found this trait to be positively linked to safety attitudes. Nevertheless, both these traits have been linked to risky safety behaviours (Beus et al., 2015; Gao et al., 2020). Given that neuroticism is strongly associated with many mental and physical disorders, identifying the root causes and means through which these disorders are connected to neuroticism may assist in the development of strategies for intervention, (Chen & Chen, 2013).

Conscientiousness and agreeableness are associated with lower rates of occupational accidents. Buck (2011) suggests this may be because

individuals high in these traits have the ability to focus on tasks and are not as easily distracted as those high in neuroticism and extraversion or with low levels of agreeableness. Because conscientiousness is a facet of conscientiousness (Costa & McCrae, 1992), conscientious individuals are more likely to follow rules and attempt to avoid mistakes (Henning et al., 2009). Clarke and Robertson (2008) found that low agreeableness was a valid predictor of accidents, and Bogg and Roberts (2013) suggest the inclusion of conscientiousness in future medical and public health research in order to understand how this trait might facilitate improved health outcomes. Beus et al. (2015) found that conscientiousness and agreeableness were negatively linked to risky safety behaviours, a finding echoed by other researchers (Gao et al., 2020). Likewise, both Beus et al. (2015) and Gao et al. (2020) found that neuroticism and extraversion held the opposite relationship with safety behaviour. There are other researchers, however, that have found either no relationship or a negative relationship between neuroticism and risk (Borghans et al., 2008).

Individuals high in openness tend to be curious, independent, imaginative and artistic (Buck, 2011). While these are all generally healthy traits, those with high levels of openness to experience can become frustrated with routine and rules and are more likely to seek greater control in response to their lack of autonomy. Engaging in risky safety behaviours conflicts with this because in a high-risk environment safety procedures must be strictly adhered to (Beus et al., 2015). The excitement seeking aspect of extraversion has been linked to unsafe behaviours (Beus et al., 2015). A possible explanation for this may be an extravert's lower levels of vigilance (Eysenck, 1962), which could affect focused attention and the ability to perform tasks safely. Openness can also be considered along these lines, whereas agreeableness and conscientiousness are linked to risk avoidance (Breivik et al., 2020).

Those working long, uneven and revolving shift patterns are particularly at risk of developing anxiety (Berthelsen et al., 2015; Pavičić Žeželj et al., 2019; Torquati et al., 2019) and depression (Berthelsen et al., 2015; Torquati et al., 2019). Furthermore, night shift work is linked to higher levels of irritability and an elevated risk of suicide (Parker et al., 2018; Sutherland & Cooper, 1996; Torquati et al., 2019).

A link between shift patterns and neuroticism was found in Berthelsen et al.'s (2015) cross-sectional study, where revolving shift workers exhibited higher levels of the trait. Tamagawa et al. (2007) found that personality traits, in particular neuroticism, were significantly associated with shift work tolerance. Their results showed that sleep on night shifts was negatively associated with trait anxiety, whereas fatigue for those on rotating shifts was positively related to trait anxiety. As trait anxiety is part of the neuroticism dimension, this further points to the importance of incorporating this personality trait when considering shift workers and disruptions in sleep. Neuroticism has been linked to poor adaptation to circadian disturbances (Hennig et al., 1996). Parkes (1993) reported significant associations between neuroticism and sleep quality, where those with higher levels of neuroticism slept for shorter periods, particularly when on night shifts. Similarly, low neuroticism and high extraversion scores are associated with a higher tolerance of shift work (Saksvik et al., 2011). Sleep quality can be affected by factors such as permanent noise, hampering effective communication and disrupting sleep quality and duration (Mette et al., 2018).

Mental Health First Aid programs are designed in a similar manner to physical First Aid programs, and aim to help others understand and recognise when an individual is suffering from poor mental health (Atanda et al., 2020), with the objective of providing assistance until specialist help is available (Boyko, 2017). It is estimated that between 68 and 88% of those trained in Mental Health First Aid have utilised their knowledge to assist someone suffering from poor mental health (Atanda et al., 2020). Minihan et al. (2020) refer to this as 'psychological First Aid' (p. 259).

6. Limitations

Although the FFM is robust, there are several limitations that must be considered. Personality traits may moderate each other. For example, conscientiousness is positively related to job performance (Barrick & Mount, 1991), yet if a conscientious individual is low on agreeableness, they may be seen by others as demanding, inflexible, rude, difficult, with a tendency to micromanage others. Furthermore, they are viewed by supervisors to have lower levels of performance than conscientious workers with higher agreeableness levels (Witt et al., 2002). There may also be further biases, such as failure to control for factors such as employee engagement and task familiarity.

A semi-structured interview technique was used to avoid limitations on the generation of understanding participant experiences. The only limitations in the interviews were the time constraint during the focus group and the multiple, sometimes overlapping, voices of participants, which were both overcome by asking the participants to add anything during member checking that they felt was important or had been missed in the interviews.

7. Conclusions and recommendations

The ongoing COVID-19 pandemic has brought mental health to the forefront, particularly in the context of work. The offshore oil and gas industry, which is more mobile than the average workforce, has experienced severe negative impacts due to compacted and extended rosters, quarantine, and isolation requirements during travel and job insecurity. The results of the focus group and pilot study show the clear impact of the COVID-19 pandemic on offshore employees and their families, as well as revealing heightened job insecurity in this cohort. In particular, neuroticism was found to be negatively associated with productivity and seeking help for poor mental health, along with fears concerning COVID-19. As health-related behaviour is frequently predicted by personality traits, the addition of personality factors from the recent literature provides further insight into managing individuals in terms of responses to stressors such as COVID-19, shift work, coping and help-seeking, stigma and isolation. Although research into how individual personalities affect responses to major stressors are widely researched, considering that investigation into the role of personality during the COVID-19 pandemic is very recent, more research is needed, particularly in isolated environments such as the offshore oil and gas industry. The combined results of the literature review, focus group and pilot study contribute new knowledge in the field of offshore work and provide a foundation for future research.

Funding

Funding: This research was supported by an Australian Government Research Training Program (RTP) Scholarship.

CRedit authorship contribution statement

Emma D'Antoine: Conceptualization, Methodology, Software, Data curation, Writing – original draft. Janis Jansz: Advising on study design, ethical issues, data analysis approach, content advice, editing, and proof-reading, Supervision. Ahmed Barifcani: Supervision. Sherrilyn Shaw-Mills: Supervision. Mark Harris: Supervision. Christopher Lagat: Supervision.

Declaration of competing interest

None.

Acknowledgements

All work in this article was completed by the above authors.

Appendix 1

Focus Group Questions

Positioning statement: The offshore oil and gas working environment is unique and may hold many psychological stressors for employees. When considered together, these factors may pose a greater than average risk to employees' mental health and wellbeing. This discussion aims to facilitate the development of effective interview questions for the research participants of the study *Identifying Western Australian Offshore Oil and Gas Workers Mental Health Hazards and Risk Control Measures*.

Exploratory Questions:

1. In your experience are there any management practices or work organization practices that affect mining industry employees' mental health? If so please explain.
2. Do you know of any psychosocial obstacles for employees when returning to work following a work-related injury or ill health and if so how do you think that these can be mitigated?
3. What do you think are the main types of, and causes of, mental health stressors for offshore oil and gas workers? What risk control measures do employers use for these mental health stressors and how effective do you think they are?
4. If employees have poor mental health, how does this impact on offshore employees' health and their safety?
5. Do you know of any economic effects on organisations when employees have to deal with psychosocial issues and/or poor mental health? If so, what are the economic effects?
6. What do you think are the economic effects of having good employee mental health practices implemented by the company?
7. Regarding best practice, what do you find gives the best outcomes for promoting positive mental health for employees in the workplace?
8. Where do you think that there are opportunities for improvement in promoting positive mental health practices for contractors and workers with ongoing employment in the offshore oil and gas industry?

Exit statement

Is there anything else that you would like to add to the discussion, or anything that you feel was missed?

Appendix 2

INTERVIEW QUESTIONS

Positioning statement: It has been identified that the offshore oil and gas working environment can be stressful for workers, particularly when considering mental health and wellbeing so it is necessary to investigate the psychosocial stressors which present themselves to employees in this environment and examine the personal, organisational and economic implications of poor mental health caused by these stressors. A work-related mental health hazard is defined as work demands that do not match the workers to their knowledge and abilities or the resources that they have available to do the work. The response can be cognitive, physical, behavioural or emotional. Work related mental health hazards include, but are not limited to, physically and/or cognitively demanding work, aggression, bullying, interpersonal conflict, under-supervision, over-supervision, lack of constructive feedback, lack of support, lack of respect, work overload, lack of role clarity, poor organisational change management, unplanned work events (e.g., over-time, call-outs), awkward roster design (e.g. mid-swing rotations, working night shifts after traveling during the day), extreme weather conditions, suboptimal

living and sleeping conditions (e.g. vibration, restricted living area, high levels of ambient noise, lack of privacy), poor organisational justice, fatigue, burnout, experiencing dangerous occurrences, exposure to trauma, and emergency management. Further, being physically or socially isolated from friends and family may be an additional burden (DMIRS, 2021; ISO, 2021; NOPSEMA, 2021).

The aim of this interview is to identify mental health hazards and possible solutions to these stressors and inform organisations and policy makers of best practices for preventing, identifying and improving poor mental health in the offshore working environment.

Demographic information

What is your role in the oil and gas industry?

Do you work for a large (more than 200 employees) or small company (less than 200 employees)?

What best defines your work status? You may agree to more than one.

- o Permanent
- o Contractor
- o Part of a service company
- o Casual

Length of experience in the offshore oil and gas industry?

- o Less than 5 years
- o 6–10 years
- o 11–15 years
- o 16–20 years
- o 21–25 years
- o 26–30 years
- o 30+ years

Which age group do you belong to?

- o Under 25
- o 26–30
- o 31–35
- o 36–40
- o 41–45
- o 46–50
- o 51–55
- o 56–60
- o 60+

Exploratory questions

- What are your rostered hours of work and for how many days/weeks at a time are you at a time rostered to work offshore?
- How do you feel about this?
- Have you experienced any management or work organisation factors that have caused you stress? If yes, please explain how this affected your mental health.
- Have you had any time off work due to stress?
- Are there any environmental factors that have affected your mental health when working offshore? If yes, please explain.
- What do you perceive to be the main work-related mental health hazards?
- Have you experienced any psychosocial stressors? If yes, please explain.
- If you have experienced returning to work after an illness or injury, how were your mental health needs considered in your return-to-work plan?
- How does the workplace culture affect whether someone will seek help for stress or poor mental health?

- Does stigma seem to affect poor mental health help-seeking and reporting?
- Have you ever had a psychological illness or suffered from poor mental health?
 - o If 'Yes':
 - o Has having a psychological illness or poor mental health had an effect on you financially?
- Have there been any economic effects on your employer or its employees from a worker being stressed or from having poor mental health? If yes, describe the effects.
- Does your employer provide mental health education? If yes, please describe the education provided.
- Does your employer implement any other strategies for mental health promotion or support? If yes, please describe these strategies.
- What interventions or approaches does the company have to develop employee resilience? Resilience is the capacity of a person to recover quickly from difficult situations through having good problem-solving skills that enable the person to cope when there are difficulties.
- In your experience, what have you found most beneficial for improving employee mental health?
- Has the COVID-19 pandemic had any effect on your mental health? If so why?

Exit statement

Is there anything else that you would like to tell me about psychosocial stressors or mental health hazards, what is done well to manage these hazards and if there are opportunities for improvement in managing employee mental health in the offshore oil and gas industry?

References

- Airakinen, J., Komulainen, K., Jokela, M., & Gluschkoff, K. (2021). Big Five personality traits and COVID-19 precautionary behaviors among older adults in Europe. *Aging and health research*, 1(4), Article 100038.
- Armstrong, L., & Rimes, K. A. (2016). Mindfulness-based cognitive therapy for neuroticism (stress vulnerability): A pilot randomized study. *Behavior Therapy*, 47(3), 287–298. <https://doi.org/10.1016/j.beth.2015.12.005>
- Aschwanden, D., Strickhouser, J. E., Sesker, A. A., Lee, J. H., Luchetti, M., Stephan, Y., Sutlin, A. R., & Terracciano, A. (2021). Psychological and behavioural responses to coronavirus disease 2019: The role of personality. *European Journal of Personality*, 35, 51–66. <https://doi.org/10.1002/per.2281>
- Atanda, O., Callaghan, P., Carter, T., Durcan, G., O'Shea, N., Steve, D., Brown, S. D., Reavey, P., Vangeli, E., White, S., & Wood, K. V. (2020). Evaluation of mental health first aid from the perspective of workplace end users—EMPOWER: Protocol of cluster randomised trial phase. *Trials*, 21(1), 1–9. <https://doi.org/10.1186/s13063-020-04636-0>
- Barlow, D. H., Sauer-Zavala, S., Carl, J. R., Bullis, J. R., & Ellard, K. K. (2014). The nature, diagnosis, and treatment of neuroticism: Back to the future. *Clinical Psychological Science*, 2(3), 344–365. <https://doi.org/10.1177/2167702613505532>
- Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44(1), 1–26. <https://doi.org/10.1111/j.1744-6570.1991.tb00688.x>
- Berthelsen, M., Pallesen, S., Bjorvatn, B., & Knardahl, S. (2015). Shift schedules, work factors, and mental health among onshore and offshore workers in the Norwegian petroleum industry. *Industrial Health*, 53, 280–292. <https://doi.org/10.2486/indhealth.2014-018>
- Beus, J. M., Dhanani, L. Y., McCord, M. A., & Chen, G. (2015). A meta-analysis of personality and workplace safety: Addressing unanswered questions. *Journal of Applied Psychology*, 100(2), 481–498. <https://doi.org/10.1037/a0037916>
- Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a nod to validation? *Qualitative Health Research*, 26(13), 1802–1811. <https://doi.org/10.1177/1049732316654870>
- Bogg, T., & Roberts, B. W. (2013). The case for conscientiousness: Evidence and implications for a personality trait marker of health and longevity. *Annals of Behavioral Medicine*, 45(3), 278–288. <https://doi.org/10.1007/s12160-012-9454-6>
- Borghans, L., Duckworth, A. L., Heckman, J. J., & ter Weel, B. (2008). The economics and psychology of personality traits. *Journal of Human Resources*, 43(4), 972–1059. <https://doi.org/10.3368/jhr.43.4.972>
- Bowers, J., Lo, J., Miller, P., Mavren, D., & Jones, B. (2018). Psychological distress in remote mining and construction workers in Australia. *Medical Journal of Australia*, 208(9), 391–397. <https://doi.org/10.5694/mja17.00950>
- Boyko, I. (2017). *Rigged for mental health*. <http://www.hureporter.com/focus-area/s/wellness-mental-health/rigged-for-mental-health/299564>
- Brannen, J. (2005). Mixing methods: The entry of qualitative and quantitative approaches into the research process. *International Journal of Social Research Methodology*, 8(3), 173–184. <https://doi.org/10.1080/13645570500154642>
- Breivik, G., Sand, T. S., & Sookermary, A. M. (2020). Risk-taking attitudes and behaviors in the Norwegian population: The influence of personality and background factors. *Journal of Risk Research*, 23(11), 1504–1523. <https://doi.org/10.1080/13669877.2020.1750455>
- Buck, M. A. (2011). *Proactive personality and big five traits in supervisors and workgroup members: Effects on safety climate and safety motivation (unpublished doctoral dissertation)*. Portland State University.
- Chen, J.-K., & Chen, I.-S. (2013). Don't worry, I'm with you: Can visionary leadership release neurotic employees for more perceived innovative interactions? *Innovation: Management, Policy & Practice*, 15(2), 215–223. <https://doi.org/10.5172/imp.2013.15.2.215>
- Clarke, S., & Robertson, T. (2005). A meta-analytic review of the Big Five personality factors and accident involvement in occupational and non-occupational settings. *Journal of Occupational and Organizational Psychology*, 78(3), 355–376. <https://doi.org/10.1348/096317905X26183>
- Clarke, S., & Robertson, I. (2008). An examination of the role of personality in work accidents using meta-analysis. *Applied Psychology*, 57(1), 94–108. <https://doi.org/10.1111/j.1464-0597.2007.00267.x>
- Costa, P. T., & McCrae, R. R. (1992). *Neo personality inventory-revised (NEO PI-R)*. Odessa, FL: Psychological Assessment Resources.
- Creswell, J. W. (2012). *Educational research: Planning, conducting and evaluating quantitative and qualitative research* (4th ed.). Pearson http://link.library.curtin.edu.au/?pid=CUR_ALMA51188663530001951.
- Crouch, M., & McKenzie, H. (2006). The logic of small samples in interview-based qualitative research. *Social Science Information*, 45(4), 483–499. <https://doi.org/10.1177/0539018406069584>
- Cubel, M., Nuevo-Chiquero, A., Sanchez-Pages, S., & Vidal-Fernandez, M. (2016). Do personality traits affect productivity? Evidence from the laboratory. *The Economic Journal*, 126, 654–681. <https://doi.org/10.1111/eoj.12373>
- Eysenck, H. J. (1962). The personality of drivers and pedestrians. *Medicine, Science & the Law*, 3, 416–423.
- Feringa, A., & Wentzel, N. (2021). COVID-19 smashing the stigma in mental health—a strategic blueprint for change/support. *The APPEA Journal*, 61(1), 12–15. <https://doi.org/10.1071/AJ20103>
- Flick, U. (2007). *Managing quality in qualitative research*. SAGE Publications. <https://doi.org/10.4135/9781049209441>
- Gao, Y., Gonzalez, A., & Yin, T. W. (2020). Exploring the relationship between construction workers' personality traits and safety behaviour. *Journal of Construction Engineering and Management*, 146(3). <https://ascelibrary.org/dbgw.lib.curtin.edu.au/doi/full/10.1061/%28ASCE%29CO.1943-7862.0001763>
- Gardner, B., Kristie-Lee, A., Vandelanotte, C., & Rebar, A. L. (2018). Mental health and well-being concerns of fly-in fly-out workers and their partners in Australia: A qualitative study. *BMJ Open*, 8(3), 1–9. <https://doi.org/10.1136/bmjopen-2017-019516>
- Government of Western Australia. (2015). *The impact of FIFO work practices on mental health. Final Report* (Report number 5). Parliament of Western Australia, Perth <https://www.google.com/url?sa=t&rect=j&q=&ecr=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwBly2ovev3AhWJSGwGHe-yAdQFnoECAyQAQ&url=https%3A%2F%2Fwww.mhc.wa.gov.au%2Fmedia%2F2548%2Fimpact-of-fifo-work-arrangement-on-the-mental-health-and-well-being-of-fifo-workers-summary-report.pdf&usq=AOvVaw2KlRWX3HQrPACyKdZpuj>
- Green, F., Machin, S., & Wilkinson, D. (1998). The meaning and determinants of skills shortages. *Oxford Bulletin of Economics & Statistics*, 60(2), 165–187. <https://doi.org/10.1111/1468-0084.00093>
- Greenwood, M., Kendrick, T., Davies, H., & Gill, F. J. (2017). Hearing voices: Comparing two methods for analysis of focus group data. *Applied Nursing Research*, 35, 90–93. <https://doi.org/10.1016/j.apnr.2017.02.024>
- Hansen, C. P. (1999). A causal model of the relationship among accidents, biodata, personality, and cognitive factors. *Journal of Applied Psychology*, 74(1). <https://doi.org/10.1037/0021-9010.74.1.81>
- Hennig, J., Kieferdorf, P., Moritz, C., Huwe, S., & Netter, P. (1998). Changes in cortisol secretion during shiftwork: Implications for tolerance to shiftwork? *Ergonomics*, 41, 610–621. <https://doi.org/10.1080/001401398186784>
- Henning, J. B., Stuft, C. J., Payne, S. C., Bergman, M. E., Mannan, M. S., & Keren, N. (2009). The influence of individual differences on organizational safety attitudes. *Safety Science*, 47, 337–345. <https://doi.org/10.1016/j.ssci.2008.05.003>
- Henry, P., Hamilton, K., Watson, S., & McDonald, M. (2013). *FIFO/DIDO mental health research report 2013*. Perth: Lifeline.
- Itebeke, K., & De Witte, K. (2021). Helpful or harmful? The role of personality traits in student experiences of the COVID-19 crisis and school closure. *Personality and Social Psychology Bulletin*, 1–19. <https://doi.org/10.1177/01461672211050515>
- James, C., Tynan, R., Roach, D., Leigh, L., Oldmeadow, C., Rahman, M., & Kelly, B. (2015). Correlates of psychological distress among workers in the mining industry in remote Australia: Evidence from a multi-site cross-sectional survey. *PLoS One*, 13(12), Article e0209377. <https://doi.org/10.1371/journal.pone.0209377>
- Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology*, 87, 765–780. <https://doi.org/10.1037/0021-9010.87.4.765>
- Kaluza, S., Hauke, A., Starren, A., Drupsteen, L., & Bell, N. (2012). *Leadership and occupational safety and health: An expert analysis*. European Agency for Safety and Health at Work—EU-OCHA <http://resolver.tudelft.nl/uuid:bf3287a-7389-46c7-b1c8-aled1dadf6a>

- Kulip, J., Jeffrey, M. S., Pang, N. T. P., Naziruddin, N., & Wider, W. (2022). Relationships between coping styles, emotional distress, and fear of COVID-19 among Workers in the oil and gas industry in Malaysia during the COVID-19 pandemic. *Sustainability*, 14(9), 5398. <https://doi.org/10.3390/su14095398>
- Lahey, B. (2009). Public health significance of neuroticism. *American Psychologist*, 64, 241–256. <https://doi.org/10.1037/a0015309>
- Lajunen, T. (2001). Personality and accident liability: Are extraversion, neuroticism and psychotism related to traffic and occupational fatalities? *Personality and Individual Differences*, 31, 1365–1373. [https://doi.org/10.1016/S0191-8869\(00\)00230-0](https://doi.org/10.1016/S0191-8869(00)00230-0)
- Leung, A. K.-Y., Liou, S., Qiu, L., Kwan, L. Y.-Y., Chiu, C.-Y., & Yong, J. C. (2014). The role of instrumental emotion regulation in the emotions-creativity link: How worries render individuals with high neuroticism more creative. *Emotion*, 14(5), 846–856. <https://doi.org/10.1037/a0036965>
- Liangputtong, P. (Ed.). (2011). *Virtual focus groups: Focus group methodology: Principles and practice* (pp. 149–164). SAGE Publications Ltd. <https://doi.org/10.4135/9781473957657>
- Liu, S., Lithopoulos, A., Zhang, C.-Q., Garcia-Barrera, M. A., & Rhodes, R. E. (2020). Personality and perceived stress during COVID-19 pandemic: Testing the mediating role of perceived threat and efficacy. *Personality and Individual Differences*, 168, Article 110351. <https://doi.org/10.1016/j.paid.2020.110351>
- Long, T., & Johnson, M. (2000). Rigour, reliability and validity in qualitative research. *Clinical Effectiveness in Nursing*, 4(1), 30–37. <https://doi.org/10.1054/cein.2000.0106>
- van Manen, M. (1990). *Researching lived experience. Human science for an action sensitive pedagogy*. SUNY Press.
- McCrae, R. R., & Costa, P. T. (1994). The stability of personality: Observation and evaluations. *Current Directions in Psychological Science*, 3(6), 173–175. <https://doi.org/10.1111/1467-8721.ep10770693>
- McCrae, R. R., & Costa, P. T., Jr. (1986). Personality, coping, and coping effectiveness in an adult sample. *Journal of personality*, 54(2), 385–404. <https://doi.org/10.1111/j.1467-6494.1986.tb00401.x>
- McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, 52, 81–90. <https://doi.org/10.1037/0022-3514.52.1.81>
- McCrae, R. R., & Costa, P. T., Jr. (1999). A five-factor theory of personality. In O. P. John, R. W. Robins, & L. Pervin (Eds.), *Handbook of personality: Theory and research* (Vol. 2, pp. 139–153). New York: The Guilford Press.
- Mette, J., Velasco Garrido, M., Harth, V., Preisser, A. M., & Mache, S. (2018). Healthy offshore workforce? A qualitative study on offshore wind employees' occupational strain, health, and coping. *BMC Public Health*, 18(1), 172. <https://doi.org/10.1186/s12889-018-5079-4>
- Minihan, E., Garvin, B., Kelly, B., & McNicholas, F. (2020). COVID-19, mental health and psychological first aid. *Irish Journal of Psychological Medicine*, 37(4), 259–263. <https://doi.org/10.1017/ijpm.2020.41>
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & The PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA Statement. *PLoS Medicine*, 6(6), 332–336. <https://doi.org/10.1371/journal.pmed1000097>. www.prisma-statement.org
- Morse, J. M. (1994). Designing qualitative research. In N. K. Denzin, & Y. S. Lincoln (Eds.), *Handbook of qualitative inquiry* (pp. 220–235). Sage Publications.
- National Offshore Petroleum Safety and Environmental Management Authority. (2021). Leadership, commitment, and responsibility. *The Regulator*. Issue 3, p.3, <https://www.nopesma.gov.au/leadership-commitment-and-responsibility>.
- Newby, J. M., O'Moore, K., Tang, S., Christensen, H., & Faasse, K. (2020). Acute mental health responses during the COVID-19 pandemic in Australia. *PLoS One*, 15(7), Article e0236562. <https://doi.org/10.1371/journal.pone.0236562>
- Oshio, A., Taku, K., Hirano, M., & Saeed, G. (2018). Resilience and big five personality traits: A meta-analysis. *Personality and Individual Differences*, 127, 54–60. <https://doi.org/10.1016/j.paid.2018.01.048>
- Parker, S. K., Fruhen, L., Burton, C., McQuade, S., Loveny, J., Griffin, M., Page, A., Chikritze, T., Crook, S., Jorritsma, K., & Esmond, J. (2018). Impact of FIFO work arrangements on the mental health and wellbeing of FIFO workers. Centre for Transformative Work Design <https://research-repository.uwa.edu.au/en/publications/impact-of-fifo-work-arrangements-on-the-mental-health-and-wellbeing>.
- Parke, K. R. (1986). Coping in stressful episodes: The role of individual differences, environmental factors, and situational characteristics. *Journal of Personality and Social Psychology*, 51, 1277–1292. <https://doi.org/10.1037/0022-3514.51.6.1277>
- Parke, K. R. (1993). Human factors, shift work, and alertness in the offshore oil industry. *HM Stationery Office*. <https://doi.org/10.1093/ocmed/kqy074>
- Parke, K. R. (2002). Age, smoking, and negative affectivity as predictors of sleep patterns among shiftworkers in two environments. *Journal of Occupational Health Psychology*, 7(2), 156–173, 0.1037//1076-8998.7.2.156.
- Pavičić Zečelj, S., Ovičanović Pelozo, O., Mika, F., Stamenković, S., Mahmutović Vrančić, S., & Šabanagić Hajrić, S. (2019). Anxiety and depression symptoms among gas and oil industry workers. *Occupational Medicine*, 69(1), 22–27. <https://doi.org/10.1093/ocmed/kqy170>
- Proto, E., & Zhang, A. (2021). COVID-19 and mental health of individuals with different personalities. *Proceedings of the National Academy of Sciences*, 118(37). <https://doi.org/10.1073/pnas.2109282118>
- Ramsook, L. (2018). A methodological approach to hermeneutic phenomenology. *International Journal of Humanities and Social Sciences*, 10(1), 14–24. https://www.researchgate.net/profile/Leela-Ramsook/publication/333687948_A_Methodologica_Approach_to_Hermeneutic_Phenomenology/links/5aa921fbaca272d39cd50403/A-Methodologica-Approach-to-Hermeneutic-Phenomenology.pdf.
- Retzew, D. C., McGinnis, E. W., Copeland, W., Nardone, H. Y., Bai, Y., Retzew, J., Devadenam, V., & Hudziak, J. J. (2021). Personality trait predictors of adjustment during the COVID pandemic among college students. *PLoS One*, 16(3), Article e0248895.
- Ross, V., Caton, N., Gullestrup, J., & Kolves, K. (2019). Understanding the barriers and pathways to male help-seeking and help-offering: A mixed methods study of the impact of the mates in construction program. *International Journal of Environmental Research and Public Health*, 16(16). <https://doi.org/10.3390/ijerph16162979>
- Ross, V., Caton, N., Mathieu, S., Gullestrup, J., & Kolves, K. (2020). Evaluation of a suicide prevention program for the energy sector. *International Journal of Environmental Research and Public Health*, 17(17), 6418. <https://doi.org/10.3390/ijerph17176418>
- Saksvik, I. B., Bjorvatn, B., Hetland, H., Sandal, G. M., & Pallesen, S. (2011). Individual differences in tolerance to shift work—a systematic review. *Sleep Medicine Reviews*, 15(4), 221–235. <https://doi.org/10.1016/j.smrv.2010.07.002>
- Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretive phenomenological analysis: Theory, method, and research*. Sage. <http://link.library.curtin.edu.au/?pid=CUR.AL.MA21101140930001951>
- Smith, J. A., & Osborn, M. (2006). Interpretive phenomenological analysis. In J. A. Smith (Ed.), *Qualitative psychology: A practical guide to research methods* (pp. 53–81). Sage Publications.
- Sutherland, V. J., & Cooper, C. L. (1996). Stress in the offshore oil and gas exploration and production industries: An organizational approach to stress control. *Stress Medicine*, 12, 27–34. [https://doi.org/10.1002/\(SICI\)1099-1700\(199601\)12:1<27::AID-SMI675>3.0.CO;2-0](https://doi.org/10.1002/(SICI)1099-1700(199601)12:1<27::AID-SMI675>3.0.CO;2-0)
- Tamagawa, R., Lobb, B., & Booth, R. (2007). Tolerance of shift work. *Applied Ergonomics*, 38(5), 635–642. <https://doi.org/10.1016/j.apergo.2006.05.003>
- Thompson, C. A., Poelmans, S. A. Y., Allen, T. D., & Andreati, J. K. (2007). On the importance of coping: A model and new directions for research on work and family. In P. L. Perrewé, & D. C. Ganster (Eds.), *Research in occupational stress and well-being: Vol. 6. Exploring the work and non-work interface* (pp. 73–113). Elsevier Science/JAI Press.
- Torquati, L., Mielke, G. I., Brown, W. J., Burton, N. W., & Kolbe-Alexander, T. (2019). Shift work and poor mental health: A meta-analysis of longitudinal studies. *American Journal of Public Health*, 109(11). <https://doi.org/10.2105/AJPH.2019.305278>
- Witt, L. A., Burke, L. A., Barrick, M. R., & Mount, M. K. (2002). The interactive effects of conscientiousness and agreeableness on job performance. *Journal of Applied Psychology*, 87(1), 164–169. <https://doi.org/10.1037/0021-9010.87.1.164>

References

- Department of Mines, Industry Regulation and Safety [DMIRS]. (2021). *Psychosocial hazards in the workplace. Draft code of practice*. Government of Western Australia.
- ISO. (2021). *ISO 45003:2021. Occupational health and safety management — psychological health and safety at work — guidelines for managing psychosocial risks*. iso.org/obp/ui/#iso:std:iso:45003:ed-1:v1:en.
- NOPEMA. (2021). *Psychosocial risk management draft guidance note. N-09000-GN1958 A757599*. Author.

D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M. & Lagat, C. (2023). COVID-19 and offshore oil and gas workers: The role of personality. *Journal: Social Sciences & Humanities Open*. 7(1), 100402. <https://www.sciencedirect.com/science/article/pii/S2590291123000074>
<https://doi.org/10.1016/j.ssaho.2023.100402>



Research Article

The Effects of Casualisation on Mental Wellbeing and Risk Management in the Offshore Oil and Gas Industry

Emma D'Antoine^{1*}, Janis Jansz^{1,2,4}, Ahmed Barifcani¹, Sherrilyn Shaw-Mills^{1,2}, Mark Harris³, Christopher Lagat¹

¹WA School of Mines: Minerals, Energy and Chemical Engineering, Curtin University, Bentley, W.A., 6102, Australia

²HSE Global, Level 25, 108 St Georges Terrace, Perth WA 6000, Australia

³School of Economics, Finance and Property, Curtin University, Bentley, W.A., 6102, Australia

⁴Xi'an University of Science & Technology, 58 Yanta Road, Xi'an 710054 Shanxi, China

E-mail: emma.dantoine@postgrad.curtin.edu.au

Received: 5 May 2023; Revised: 22 June 2023; Accepted: 1 July 2023

Abstract: This qualitative study was conducted with the aim of identifying psychosocial hazards in Australian offshore oil and gas facilities. Twenty-nine offshore oil and gas workers were interviewed via video link. Results indicated that, apart from the presence of a high-risk work environment as a source of mental and physical strain, there are organisational-specific stressors that cause workers' significant distress. Research results from NVivo analysis revealed that casualisation of the workforce was a major psychosocial hazard for offshore oil and gas workers, which resulted in feelings of insecurity, vulnerability and disconnection from work teams. In addition, a lack of stable income, an absence of opportunities to plan for the future and unsettled living arrangements worsen an already precarious existence. Findings show that a culture of blame and fear persists in some organisations, along with a lack of accountability and fear of making mistakes. The process of hiring, firing and rehiring was found to be a common practice by organisations in order to avoid their duty under the Fair Work Act amendments to offer casual conversion to their employees. Findings can be used to help inform organisational policies and assist in the development of risk control measures to minimise psychosocial hazards for offshore workers.

Keywords: offshore oil and gas, psychosocial hazards, casualisation

1. Introduction

The offshore oil and gas environment is an inherently dangerous place to work, with some of the most hazardous working conditions in the world (Mearns & Flin, 1995; Nielsen et al., 2011). Hazards to safety include blowouts, transport accidents, diving accidents, damage to the installation structure, dropped objects, cuts and falls (Nielsen et al., 2011). The presence of natural and industry-specific stressors is only exacerbated by the casualisation of the workforce in the industry. Due to the uncertainty of their work, offshore workers can be affected by psychological stressors and poor mental health, impacting their ability to perform tasks safely. In this study, job uncertainty comes from casual work status. Casual workers (who may also be permanent or contractors) are supposed to be protected under new Australian laws introduced to ensure that they can request their work to become permanent if they satisfy certain criteria. One of these criteria is that workers must have a regular pattern of shifts for six months prior to the request for casual

Copyright ©2023 Emma D'Antoine, et al.
DOI: <https://doi.org/10.37256/ujom.2220232965>
This is an open-access article distributed under a CC BY license
(Creative Commons Attribution 4.0 International License)
<https://creativecommons.org/licenses/by/4.0/>

conversion and have worked for the employer for at least 12 months (Fair Work Ombudsman, 2023; Stanford, 2021), which disqualified 40.9% of casual employees in Australia (Gilfillan, 2020). In the mining sector, 65.5% of casual employees had been with their organisation for less than 12 months. Their contract ends just before the 12-month period and recommences again after this date. This pre-condition to casual conversion has been misused by employers in order to deny workers permanent contracts. Moreover, the employer can still refuse a request for casual conversion on 'reasonable grounds' (Stanford, 2021, p. 7). Participant 12 (henceforward participants are referred to as P and then a number, for example, P12) had been refused permanency several days before the interview.

Casual work is common in Australia and is used widely in the offshore oil and gas industry. As well as casual workers, other workers, such as contractors, fixed-term workers and those who work for labour-hire companies, are still employed in significantly precarious employment (Markey & McIvor, 2018).

A lack of psychosocial support may result in offshore workers presenting a higher than usual risk, both to themselves and those around them (Australian Maritime Safety Authority, 2020). In 2021, in line with the findings in this study, the Australian Workers Union stated that working conditions for offshore workers have been subjected to over-casualisation. Further, terms of employment have been negatively impacted by contractors' attempts at winning work through directly cutting employee pay and using loopholes to obtain poor enterprise agreements in order to 'undercut their competition' (Australian Workers Union, 2021, p. 1). Job uncertainty is a major cause of stress for workers (Parker et al., 2017; Sutherland & Flin, 1989) and significantly associated with medium to high levels of psychological distress (James et al., 2018), financial stress (Choi et al., 2020) and acute depression (Sultana et al., 2022), particularly in males (Andrea et al., 2009), whereas permanent contracts have been shown to improve mental wellbeing (Sampson & Ellis, 2021).

Contractors are also vulnerable to job uncertainty (D'Antoine et al., 2022). Research demonstrates that workers with casual employment status fear the loss of their job (P4; Quinlan, 2014) and that job uncertainty leads to negative health and wellbeing outcomes for employees (De Witte et al., 2015). Precarious work status is part of a wider picture with respect to workplace bullying and harassment (Österman & Boström, 2022). Powerlessness at work has serious health consequences (Virtanen et al., 2011), often leaving workers at risk of disengaging from their role (Milliken et al., 2003). In contrast to their permanent co-workers, casual employees feel less appreciated and are much more at risk of being easily replaced by their organisation. Consequently, they are less likely to contribute to their work team (Zeytinoglu et al., 2004).

This study utilised an Interpretative Phenomenological Analysis (IPA) method as part of a qualitative approach. The aim of the study was to investigate psychosocial stressors for offshore oil and gas workers.

2. Materials and methods

This exploratory qualitative study was conducted via Microsoft Teams in Perth, Western Australia and analysed through qualitative data analysis software NVivo, which identified themes emerging from the interviews. Participants were recruited according to their employment position in offshore oil and gas facilities in Western Australia, affording them the necessary lived experience to inform the study (van Manen, 1990). The Human Research Ethics Committee (HREC; Ethics Approval number HRE2021-0512) granted approval for this study.

2.1 Participants

There were 29 participants in the study, all of whom were employees in the offshore oil and gas industry. Participants worked for a number of different company types and sizes and had various roles in offshore oil and gas facilities. Ages ranged from under 25 to 60+ years. Nineteen participants were permanent, and five were casual. Of these, eight participants were contractors. Employees can identify with more than one employment type. For example, P4 was a casual contractor. Three participants were female, and 26 participants were male. All participants worked 12-hour days, with no days off while offshore.

2.2 Procedure

All interviews were conducted over a video link and were recorded and transcribed. Interview questions were formed from focus group answers and a review of published literature. Questions were designed to be open-ended, enabling participants to narrate their own experiences (Creswell, 2014), as accurately and authentically as possible. The appendix documents the questions asked.

2.3 Analysis

The number of interviews to be conducted was not predetermined, and interviews were conducted with participants until data saturation was achieved. Because qualitative research aims to reveal meaning and experiences, once no new themes emerge, an acceptable sample has been reached. When considering the number of participants required for this, Morse (1994) suggests using at least six individuals, while Creswell (1998) recommends between five and 25 participants. Qualitative studies have traditionally contained a very small number of participants due to the richness of the data they provide, and the sample size is determined by data saturation and will differ across studies (Moser & Korstjens, 2018).

All interviews were recorded and transcribed. During the interviews, the researcher made notes. NVivo software was used to analyse the data. Analysing qualitative data through NVivo 12 software strengthens the validity and reliability of the analysis (O’Kane et al., 2021). NVivo software aids the researcher in the classification, categorisation and arrangement of data, which assists in analysing information and identifying emerging themes. Transcripts were coded and sub-coded as new themes emerged, revealing patterns in the text. Findings were compared with literature review results. A mind map was created for each participant’s interview transcript, where further ideas and themes could emerge. Mind mapping is the process of taking notes in diagram form in order to identify a central theme that interconnects concepts, ideas and themes (The University of Adelaide, 2020). Mind maps aim to provide the researcher with a visual and participant-centred method of grounding the results within the theory (Wheeldon, 2018).

3. Results

Participants in this study stated that the casualisation of positions on offshore facilities was a major stressor. For employees who held casual work status, several factors overshadowed their working lives, adding uncertainty and instability to an already stressful and high-risk occupation. Participants who were casual stressed the difficulty of being unable to plan for holidays, special events and visiting family. Casual employees cannot commit to family plans or holidays as their future schedule is unknown. With changeable shifts and extended gaps between work, workers endure a sort of limbo (P20):

‘Then in the old days you got off the ship you didn’t really know if you were ever, if you were coming back again, or they’re just gonna hire another casual. That’s a very loose grey area, I mean, obviously if the captain thinks your performance isn’t very good, you can guarantee you’re not gonna be back. But I think that that needed to be addressed because there was a lot of people going you can’t plan your life, I think that’s the most stressful thing actually is that I can’t plan my life, like next year, I’ve got no idea what’s gonna happen next year because I’m casual’ (P20).

Fly-in fly-out (FIFO) workers have reported feeling that others not employed in this type of work are unsympathetic to the unfavourable aspects of the lifestyle, with the opinion that high income precludes any complaints of the negative elements of the work. Furthermore, some participants in Gardner et al.’s (2018) study were unsympathetic towards fellow FIFO workers. Reflecting on Gardner et al.’s (2018) findings that there is a perception that it is the ideal lifestyle and that employees should not complain, P12 pointed out the drawbacks of being regularly absent for long periods of time and noted that it required mental toughness to work offshore:

‘I think sometimes they think we’re just living this glorious life and we’re getting paid heaps of money. And it’s like, well, hang on., I work. I’m away half of my life, you know, like no one would do that if the money wasn’t good, there’s no way you’d do it. But also just because the money’s good, it doesn’t make it like you, it’s still, it’s a mental game’... ‘you gotta keep your mind right and you gotta, you know, yeah, that’s the thing, you know, you’re not living a life that everyone else’s living. Yeah, you’re here and you’re gone. You’re

here and you're gone. You're here and you gone. You can't have a dog. You can't have a cat. You can't, you know, it's hard on your relationship. There's so many things that they don't see, so that needs to be kind of acknowledged that it's not just an easy job. It's not, it can be a difficult lifestyle if your mental game's not there' (P12).

P11 explained how casual work status affected them financially:

'So you never know that you're gonna be working, like you could get flights, you get told you're going here, you're going there. But until you're, like, standing on the vessel, you don't really know for certain that you're gonna have that work. So I guess it's very insecure with your finances and I suppose that it's from the management to a degree, like it may not be the person on the other end of the phone that's doing that intentionally, but it's more broader management of organization that that happens' (P11).

P10 also emphasised the stress caused by the lack of a stable income and echoed the role of management in contributing towards uncertainty and insecurity:

'Yeah, I would say there can be uncertainty about when the next sort of work is coming. And sometimes the lack of clarity and communication from the management side of it, so that can be pretty stressful not knowing what, you know, if anything's locked in, if I'm gonna have enough money in the future and stuff like that' (P10).

It is also a concern to casual workers how they will support themselves if they are required to take time off work after events such as illness or injuries.

'I've only had time off due to injuries 'cause I've had a few injuries when I've been on leave. I have stacked the motorbike and you know, just some injuries that were just an accident. And I've been through a bit of a low point through all that stuff. And you know it was a bit of a struggle because you're not working and sometimes you've got no, you know, I had to redraw a lot of money in my mortgage at one stage' (P12).

Furthermore, there seemed to be a difference in the way casual and contractor staff are treated by their colleagues.

When P4 realised that he/she was not being paid superannuation, seeking help from a colleague proved difficult:

*'I found out I wasn't being paid super and a few other things and I went and spoke to *colleague*. I was like 'who do I speak to about this' and he was like 'I don't know mate, your union rep?' And so there is that very much... and that wasn't with malice, it was just like 'that's not my job mate'. And so there is very much that... yeah, I feel the whole vessel would be better if everybody was *company name*. Or everyone fell under that banner if it was *company name*'s job to look after all that sort of stuff. Then that would be inclusive. But at the moment it's not, so it's very much a... even though I'm core crew, I'm contractor core crew, so I'm not included in that banner, you know' (P4).*

Some workers may hold casual status for over 10 years because there is 'a resistance and recalcitrance for casual conversion, getting bullied by the HR department or the line managers, where like the guy you were talking about as soon as you say something, boom you don't get the call back. There's that that goes on a fair bit' (P13). In addition, workers fear consequences when speaking up about mental health, due to lingering stigma:

'I think people tend to assume that if they are having mental health problems, they may be deemed unfit to work offshore and might lose their jobs' (P29).

'In general, I think some of the younger ones don't want to be seen to be not right. And the other one is I think a lot of people who are casual are frightened about their job' (P24).

Furthermore, where safety concerns exist, it is typically down to people who are permanently employed to speak up:

'So that the casual guys, if they do it, they don't get the call back... and the threats from people who have the power to not reemploy people is one of the big issues' (P13).

When a safety concern is raised, particularly where the concern is not shared by the management, this may amplify stress levels and lead to bullying and intimidation, as it is not uncommon to find that those who raise safety concerns are consequently victimised (Henry et al., 2013). Further discord can occur from lingering rivalries across the organisation, manifesting as threats and coercion from managers and supervisors, pointing to power struggles between management and employees:

'Like sometimes the officers upstairs, you know, the chief maid or the captain can be really, like in any job, can be a real micromanager or really, kind of, most of the time a good crew all feel like you're all on the same level. You're all in the same boat. Yeah, you work together. But then other times there can be these

power trippers and there can be a real us and them thing and, you know' (P12).

Bullying between colleagues and peers was not a common finding. As other authors have reported, bullying and victimisation tended to come from management, making it difficult to deal with in a positive manner. However, a decisive approach seemed to be the most common method:

'As for bullying, I've witnessed that. Definitely. But it's always come from management-level down. It generally hasn't been bullying between us peers. If you get a supervisor that doesn't like someone underneath them and they can make their life hell, hold them back from promotion, or they just play games, it's not good'... 'the only thing that you can do, and, you know, people do, do this, they would just start taking notes and with bullies all you have to do is confront them, and you know when you get some evidence behind you and then one day, just confront them and just say this is the last time, like no more because it's always a strong, big strong alpha male picking on the weakest one in the group' (P8).

Extending time between jobs is a common strategy for casual workers if they feel that they cannot return to that particular workplace, indicating that lack of permanent work status results in unfavourable effects that extend past job status. At times, a hostile workplace can result in workers using their accrued leave so that they are no longer exposed to that environment. When asked by their employer if they wanted to return to the workplace, P13 explained:

'I said, oh, look, I'm happy to have time off or move elsewhere. And they often do that just to sort of recuperate and, you know, cause it's, because I suppose they know if they go back there, they're just gonna be in a hostile work environment so they choose to go, going back to that place, unless they really need the money, I guess. But that's what a lot of people generally do is if they, if the work environment gets hostile and they get hostile enough for them to be uncomfortable, they'll try and seek work elsewhere' (P13).

The COVID-19 pandemic saw strict restrictions on travel introduced to parts of the country, particularly Western Australia. Travel constraints further worsened job security for casual workers and contractors, particularly for those living in other states, who found not only their jobs to be more precarious but also endured extended time away from their family and friends:

'Yeah so, I'm the only one of my family that lives in Western Australia. Not that big of a deal, but yeah with the closure of the border and then the casualisation of my job I was unable to return home, so it's been pretty tough. This is the first time I've seen some of my family for 4 years' (P4).

Access to permanent accommodation results in improved employee mental wellbeing, however, some workers mentioned that they are not assigned a permanent room when they are working offshore. Furthermore, in some facilities, employees must pack their belongings and move into a different room at the end of their shift:

'We've got lockers in your room and stuff like that. But at the end of your shift, we pack everything up into a bag and put it into storage in another room. And, so the next person can come in and use the cupboards and drawers. But it's not like you'll ever come back into exactly the same room where you've got all your stuff. Yeah, it's a bit of a transient lifestyle. You bring your bag in, unpack and at the end of your... yeah, you hitch your; you pack everything up again. Like a swagman' (P8).

Offshore casual workers remain unprotected, even with recent workplace law amendments. Although current workplace regulations state that once an employee has worked for an employer for over 12 months, they are eligible to be offered permanent employment (Fair Work Ombudsman, 2023), P12 had been with the same company for nine years and had retained casual work status, albeit 'permanent casual'. Although she had requested permanency from the company a few days before the interview, the company rejected the request based on the fact that the employee was working on a vessel at the time. A vessel that has not been contracted for over 12 months means that its employees are also not able to be given permanent work status:

I'm casual still, but I'm permanent casual, like I've been with the same company for nine years and I'd love to be permanent, but I actually asked for permanency again the other day because there's a bit of an upturn in the industry and with this takeover and all these boats on the coast now, but they rejected my request based on the fact that I was working on a vessel at the time, which is this now, which is gonna be finishing up its contract within 12 months. So that's how they kind of get around it. If you're on a vessel that's not on a contract for over 12 months, they say they can't give you permanent, which is a kind of a load of crap, because I know that with all the boats now, I'll just go to another boat with the same company if this one finishes the contract and doesn't get another one' (P12).

The recalcitrance for permanent conversion is worsened by organisational attempts at utilising ministerial powers through repealing the Migration Amendment (Offshore Resources Activity) Act 2013, which 'removed the requirement for foreign workers to hold a visa when they participate in, or support, offshore resource activities taken to be in the migration zone' (Parliament of Australia, 2014, p. 1):

'So yeah, from an employment perspective, if the government is trying to legislate employment law away so it's not applied, it's a stressful thing, you think OK well I've been working at sea for the better part of 15+ years, [inaudible] going to have to do some training, or where's the next lot of employment coming through, not only for myself but for a few thousand other people and part of... the other thing around whatever people's particular views on how the world should see or fit around that, but yeah, that created a large amount of stress and anxiety' (P13).

Being unable to attain permanency in their work is frustrating and stressful for workers, who feel like they are unable to speak up due to professional and social exclusion, loss of employment and being deliberately held back in the progression of their career. A conversion to permanency requires an employment period with the same organisation to be over 12 months of continuous service. However, many companies employ workers for just under 12 months, terminate their employment at the end of their swing and then reemploy them when they return. Thus, casual workers are not employed by the organisation when they are on shore leave, making it impossible for them to convert to permanent status, even if they have been employed by the same company for many years. When P20 returns home, she is no longer classified as employed by her organisation. Furthermore, she revealed the underhand process that occurs once casual workers are off the facility:

'A lot of the voting sometimes that goes on when it comes to EBA's and things, I'm a casual, not a permanent person and if you're not at work... when we sign off at the end of five weeks, we get paid out so technically we're not working for the company anymore, which means we can't vote and they very often will hold those votes when casuals are not employed which is really, really sneaky of them and makes me really angry actually because I've been working for the same company for 12 years... I've missed like I think in that 12 years maybe 7 shifts. So, if you add that up 7, 5... 35 weeks work in 12 years, but I'm not classified as somebody that can vote about my job. It's so annoying. It's really... it's tactics. It's all to do with tactics of big company yeah?' (P20).

Reviewing the Fair Work Amendment, KPMG (2022) reported concerns from the Electrical Trades Union of Australia (Department of Employment and Workplace Relations, 2022) that the casual conversion system can be readily avoided by employers, such as in cases where workers are employed through labour hire companies or are involved in short-term projects. The Construction, Forestry, Mining and Energy Union (CFMEU; 2022) further stressed that there is no condition in the casual conversion mechanism that can curtail the practice of hiring, terminating and rehiring employees by organisations in order to sidestep the obligation to convert employees to permanent employment status.

Despite the terms laid out in Section 66L of the Australian Commonwealth Government Fair Work Act 2009 (Fair Work Act (Cth.) as amended in 2021), which states that an employer may not 'reduce or vary an employee's hours of work, or terminate their employment, in order to avoid any casual conversion' (p. 1), the obligations under the Act are clearly being navigated by organisations. Further concerns were raised by the CFMEU (2022) relating to this practice in the building and construction industry. Both the Electrical Trades Union and the CFMEU have independently suggested that any subsequent amendments to the casual conversion mechanism should seek to reinforce compliance with the Act's obligations to abstain from the use of termination of employment and rehiring to avoid compliance (KPMG, 2022).

Although casual work may suit some employees due to the flexibility offered (Cameron et al., 2001; Richardson et al., 2012), generally speaking, precarious work creates insecurity and uncertainty. The following statement from P12 sums up the difficulty casual employees face when attempting to establish some kind of stability in their working life:

'I'll probably just go to another boat so I'm still working for them, but that's how they get around it, and it is hard because it is an up and down industry. So I kind of get it why they want a lot of casuals, but it's still hard to run your life when you're only a casual employee for so long and even though you're working all the time, you just don't have that security. So, it plays on your mind, it used to play on my mind a lot more, especially when it was quiet. You know, you'd be stressing out if you're going back, you'd be waiting for the e-mail and you couldn't plan your life. And that was, it was difficult.'

A culture of blame pervaded the offshore work environment in Collinson's (1999) study on North Sea offshore facilities, where employees frequently failed to report accidents. P26's statement lends weight to these findings and strengthens the conclusion that a culture of blame remains in the offshore industry, particularly where facilities are undermanned (P4) or where there are contractors and subcontractors:

'Definitely what I see within the contractor space is that there is a blame culture. But for some of these momentum organizations such as the one I work for, we definitely try and step in and try and influence this sort of this culture that's trying to be set and to ensure that we're not trying to blame people, we're trying to actually find out the root cause and the answers behind why people make those decisions. Definitely looking into the more human factors sense. What I see out there is that yes, from the contractor stance, there is a blame culture, but the more mature organisations are trying to step in and try and change that' (P26).

Corresponding with P4 and P12's experiences working offshore in Australia, Collinson's (1999) research revealed an 'us and them' culture (p. 588) on North Sea installations, where contractors generally performed the most hazardous tasks, placing them at greater risk of accident involvement. Terms and conditions were typically inferior compared to those in place for company employees, inequalities which remain evident today:

'The leaders in that space are very much company-centric. But also, too it's... I found with my last company, I thought it was more a vessel thing, but it's not, it's a [company name] thing, so it's very much 'I'll help you out if you're [company name], but if you're not, you've got no help mate'... 'I feel the whole vessel would be better if everybody was [company name]. Or everyone fell under that banner if it was [company name]'s job to look after all that sort of stuff. Then that would be inclusive. But at the moment it's not, so it's very much a... even though I'm core crew, I'm contractor core crew, so I'm not included in that banner, you know?' (P4).

The most important thing managers can do is communicate openly and have clear expectations so that employees are aligned on what these expectations are. Being open and honest builds trust in both contractors and teams alike, helping to break down barriers between workers who are permanent members of a vessel or facility and those who are new or short-term employees (P27). Another way to build trust between managers and employees is to grant workers freedom and autonomy over their job roles:

'I think that one plays a big part in affecting mental health. When you go into a job and you know that you've got that autonomy and you've got the trust of your managers and supervisors. It does incentivise you to do better and achieve' (P27).

Positive mental health and the absence of a blame culture where *'if you make a mistake, you get thrown under the bus'* (P27). P4 felt that the vessel they worked on had a culture of blame and revealed what they thought to be the root causes:

'...because you've got your finger in so many pies it's easy for you to be the one accountable for that and I'm all for accountability but this vessel seems to be a little more about blame, or that area, and that's because of understaffing... but I think too that comes from people worried about losing their job as well, there's a whole bunch of things; casualisation of everything, there's two factors there but also to when people have full time jobs sometimes it goes the other way as well you know, you just can't get them to do anything either. I mean I don't know what the solution to that is either but the solution's probably proper engagement and accountability, like allowing people to have ownership, which allows accountability without blame, you know, everything' (P4).

In summary, permanency would provide job security and help to decrease concern about job status. Casual workers just want stability and continuity, which is summed up simply in the following statement:

'I would love to be permanent because that would take a weight off my shoulders, and I think that's just something that's always been hard with casual people' (P12).

4. Discussion

The unfavourable aspects of precarious work are numerous and include working for multiple employers and on several facilities, irregular work, unconventional work schedules, hazardous working conditions and financial insecurity, which can all affect mental health adversely (Premji, 2018). Casual employment is frequently referred to as 'precarious'

(Richardson et al., 2012, p. 558), suggesting that workers endure unfair conditions, are disadvantaged by their work status, and are exposed to unscrupulous practices that further aim to erode employee rights.

A major stressor of casual work is inconsistent income, which causes ongoing uncertainty regarding finances and is a likely cause of long-term stress and anxiety around the management of finances (Quinlan, 2014). Moreover, participants expressed frustration that there was no possibility of permanency and were likely to continue their working lives in a state of anxiety and uncertainty, concerned that they may lose their jobs at any time (Zeytinoglu et al., 2004). This may lead to an acceptance of poor working conditions, which leads to costs for both employees and organisations (Sutherland & Cooper, 1996). A notable example of this is the poor accommodation arrangements for offshore employees: the ever-changing room after each shift, and the packing of belongings each day, adding further highly uncertain factors for those who have existing impermanence in the form of work status.

An association between job uncertainty and bullying was found by Baillien & De Witte (2009) and has been linked to unsafe behaviours (Probst & Brubaker, 2001; Størseth, 2006), whereas permanency has been associated with increased job security, safety satisfaction and income. Of significant concern is the finding by Parker et al. (2018) that the main source of bullying for FIFO workers comes from supervisors (40.54%). Employees require support from supervisors and management; however, FIFO workers report a lack of support during challenging times (Colquhoun et al., 2016). In order to effectively satisfy job roles, workers must receive encouragement and cooperation, which is less likely if interpersonal relationships have become strained or tense. In a collaborative work environment, exchanges of information are vital, yet speaking up about issues in the workplace can affect multiple aspects of workplace domains such as interpersonal cooperation and communication, interpersonal connectivity, team cohesion, group belonging and perceived credibility. Information flow may also be weaker for casual workers due to the link between work insecurity and work disorganisation (Quinlan, 2014). In the context of power relations, the discrepancy between supervisor and employee leverage has the potential to leave workers powerless when faced with managerial influences on promotions, work tasks, inclusion in team meetings and future offers of work from the company, all factors affecting the participants in this study. Respondents experienced exclusion from meetings and trips, being demoted and being discredited by their supervisor. Exclusion from such interpersonal interactions within the workplace may potentially compromise work performance in a manner that may be challenging to reverse (Milliken et al., 2003).

With respect to team functioning and safety, Landon et al. (2019) reported negative associations with isolated working environments and confined working areas. On an offshore facility, where working and living spaces are minimal, interpersonal stressors may affect attention and awareness levels. Poor focus and attention lapses are a risk to safety and the wellbeing of workers, leading to poor reactions in emergencies and stressful situations (Sutherland & Cooper, 1996).

Insecure work is listed as a workplace psychosocial hazard in the *Code of Practice* (Commission for Occupational Safety and Health [COSH], 2022), which includes casual employment, placing employees at risk of stress and experiencing perceptions of vulnerability (Colquhoun et al., 2016). In the offshore oil and gas industry, the common view among employees is that organisations are reluctant to make casual workers permanent. Undoubtedly, casual workers find themselves in a precarious position where they are hesitant to speak up about any issues, even if they have been with the same company for many years, due to fear of job loss. This is with good reason, as participants revealed the consequences when they raised issues, such as losing opportunities for further work and fear of losing their job if they spoke about mental health issues (P29).

Effects of job insecurity are felt in other domains of the workplace, such as interpersonal relationships (Leka et al., 2010) and performance levels (Wang et al., 2015), although performance levels were only adversely affected when organisational justice was low. Further investigation into perceptions of organisational justice would need to be conducted to determine if any relationship between job insecurity and performance levels exists in the offshore workplace, although some studies have shown that the effect of job insecurity on performance is moderated by work-related attitudes (Chirumbolo & Areni, 2005), supervisor support (Schreurs et al., 2012) and psychological capital (Darvishmotevali & Ali, 2020). Other authors have found it difficult to speak up in similar work contexts. Sampson et al.'s (2019) study of seafarers found participants to be openly apprehensive regarding speaking up about safety and what they felt was right. For organisations to manage risk effectively, all workers should feel able to discuss their concerns relating to safety or other issues present in the workplace in the same manner that permanent employees are able to.

Another concerning finding was the presence of blame culture, particularly when mistakes have been made.

Similarly, Collinson (1999) found both a tendency for blame to travel downwards, or vertically (Collinson, 1999), from manager to worker and to extend laterally, from operator to contractor. From a group socialisation viewpoint (Moreland & Levine, 1982, cited in Moreland & Levine, 2002), individuals who enter a group will see their commitment increase over time, at least until there is acceptance and approval by the group. Unfortunately, casual workers and contractors have short-term memberships in workplaces and the groups within them, so there can be diminished trust levels between permanent and temporary group members, as Moreland and Levine (2002) found in their study of new and marginal work group members, indicating a reluctance on the part of permanent employees to entrust temporary workers due to the short-term nature of their positions. Moreover, the dissimilarities between casual and permanent workers have been shown to reduce perceived similarities between the two, potentially promoting the establishment of ingroups and outgroups and reducing trust development between team members (Brewer, 1993).

As a lack of trust is linked to poor performance and poor interpersonal behaviours, workplace learning and open communication about safety are diminished, endangering the identification of existing organisational flaws and enhancing the likelihood of an accident. It can therefore be concluded that trust between workplace groups may safeguard against the development of blame culture within organisations (Conchie & Donald, 2006).

In this study, one casual worker (P10) had been involved in a near-miss accident, yet this was not reported to management, reflecting the findings of Underhill and Quinlan (2011), who reported that casual workers hesitated in reporting minor injuries, continuing to work until they were no longer able to do so. Furthermore, they had a higher rate of dismissal after injury than permanent workers. P10 went on to explain the effect of the near-miss on their mental health and that of his/her colleagues:

'I had a quite a big near miss, where it was quite close to me to potentially losing my life or having a serious injury. And sort of the full realization of it didn't set in for a few days. And I can tell it affected some of the team leaders around me since they were, probably should have seen it coming, so it was impactful for both me and them as it kind of set in?' (P10).

Near-miss accidents are the result of everyday safety behaviours, perhaps the product of 'normal' unsafe actions (Perrow, 1999), which are generally influenced by work colleagues and sometimes supervisors. Consequently, Conchie and Donald (2006) argue that their findings that trust level in work colleagues is the most significant predictor of near-miss accident or event involvement suggest that a decrease in distrust of work colleagues, contractors and supervisors could reduce involvement in offshore accidents and incidents.

The reporting of hazards, including near-miss accidents, is crucial for organisational risk management, particularly in the identification of risks that can have catastrophic outcomes if not managed. Reporting near-misses affords organisations valuable insight into the root causes of accidents and the factors that may precede them, ultimately helping to prevent further accidents (NOPSEMA, 2020). Reporting allows for these incidents to be analysed, revealing trends and creating opportunities to improve workplace safety and promote positive attitudes about safety (Kongsvik et al., 2012). Discouraging the reporting of near-misses and accidents or dismissing incidents as unnecessary interruptions demonstrates disregard for a commitment to safety behaviours (Hopkins, 2006).

During the lockdown periods of 2020 and 2021 in the COVID-19 pandemic, casual workers were eight times more likely to lose their jobs than permanent employees. Half of the job losses during the first lockdowns in 2020 were those of casual workers and part-time employees. Casual workers accounted for 75% of all job losses in the lockdowns of the following year (Stanford, 2021). Job insecurity due to COVID-19 was found to reduce employee wellbeing through financial stress in Sarwar et al.'s (2021) study, where financial stress made job insecurity more distressing.

A lack of trust in casual workers by workers with ongoing employment and a lack of trust in management by casual workers were evident. Without mutual trust, there may also be low levels of open and honest communication, fearful workers, low levels of job satisfaction and high staff turnover. Even with amendments to the Fair Work Act and given that interviews took place after the amendments came into force, it is clear that casual workers in the offshore oil and gas industry remain unprotected (Commonwealth Consolidated Acts, 2009). The 2021 amendments to the Fair Work Act 2009 should have established a commitment by employers to extend permanency to casual workers who have worked for their employer for at least 12 months and have spent the previous 6 months working a pattern of stable shifts (Fair Work Ombudsman, 2023; Stanford, 2021). Unfortunately, this disqualifies 40.9% of casual employees in Australia (Gilfillan, 2020). In the mining sector, 65.5% of casual employees were reported to have been with their organisation for less than 12 months and can still be refused conversion to permanent employment on the basis of 'reasonable grounds'

(Stanford, 2021, p. 7), as evidenced in the telling of real-life experiences of offshore workers such as P12, who had been refused permanency several days before the interview.

5. Study limitations

Due to the small number of female participants, responses may not reflect a balanced picture of experiences for this population, however, obtaining a more balanced participant sex ratio is challenging when researching phenomena in traditionally male-dominated industries. While the sample size would generally be classified as small and data saturation was achieved, the nature and methodology of this study were intense and in-depth enough to warrant confidence that the results were representative of a specific population in a specific setting.

6. Conclusion

Although it is argued that job insecurity is in part a perception, there are substantial tangible factors within organisations that affect casual workers. This study revealed casualisation has resulted in poor mental health and wellbeing for offshore oil and gas employees, particularly during the uncertain events of the COVID-19 pandemic, when travel restrictions and quarantine protocols were in their infancy.

It was concluded that organisations should strive to promote safe behaviour through open communication and the flow of information, which also helps to build trust between managers and workers. Placing trust in employees through role autonomy also strengthens trust between managers and workers. This reciprocal trust relationship is vital for the pursuit of accountability in the absence of a blame culture. It is recommended that organisations cease the process of hiring, terminating, and rehiring as a means of avoiding the obligation to offer employees permanent employment. Improving the eligibility threshold for conversion and strengthening compliance measures may safeguard employees against this practice.

Acknowledgement

Funding: This research was supported by an Australian Government Research Training Program (RTP) Scholarship.

Conflict of interest

There is no conflict of interest for this study.

References

- Andrea, H., Bültmann, U., van Amelsvoort, L. G. P. M., & Kant, Y. (2009). The incidence of anxiety and depression among employees—the role of psychosocial work characteristics. *Depression and Anxiety*, 26(11), 1040-1048. <https://doi.org/10.1002/da.20516>
- Australian Maritime Safety Authority. (2020, March 4). *Fatigue guidelines - managing and reducing the risk of fatigue at sea*. <https://www.amsa.gov.au/vessels-operators/seafarer-safety/fatigue-guidelines-managing-and-reducing-risk-fatigue-sea>
- Australian Workers Union. (2021, April 15). *Offshore alliance EBA win*. <https://www.awu.net.au/news/2021/04/14214/offshore-alliance-win/>
- Baillien, E., & De Witte, H. (2009). Why is organizational change related to workplace bullying? Role conflict and job insecurity as mediators. *Economic and Industrial Democracy*, 30(3), 348-371. <https://doi.org/10.1177/0143831X09336557>
- Brewer, M. B. (1993). The role of distinctiveness in social identity and group behaviour. In M. A. Hogg & D. Abrams

- (Eds.), *Group motivation: Social psychological perspectives* (pp. 1-16). Harvester-Wheatscheaf.
- Cameron, A., Brosnan, P., Horwitz, F., & Walsh, P. (2001). Casualisation and outsourcing: A comparative study. *New Zealand Journal of Industrial Relations*, 26(3), 253-272.
- Chirumbolo, A., & Areni, A. (2005). The influence of job insecurity on job performance and absenteeism: The moderating effects of work attitudes. *SA Journal of Industrial Psychology*, 31(4), 65-71.
- Choi, S. L., Heo, W., Cho, S. H., & Lee, P. (2020). The links between job insecurity, financial well-being and financial stress: A moderated mediation model. *International Journal of Consumer Studies*, 44(4), 353-360. <https://doi.org/10.1111/ijcs.12571>
- Collinson, D. L. (1999). 'Surviving the rigs': Safety and surveillance on North Sea oil installations. *Organization Studies*, 20(4), 579-600. <https://doi.org/10.1177/0170840699204003>
- Colquhoun, S., Biggs, H. C., Dovan, N., Wang, X., & Mohamed, S. (2016). An occupational study of the mental health of FIFO/DIDO construction workers. In *International Conference on Innovative Production and Construction (IPC 2016)* (pp. 1-8).
- Commission for Occupational Safety and Health. (2022). *Psychosocial hazards in the workplace: Code of practice*. Department of Mines, Industry Regulation and Safety. https://www.commerce.wa.gov.au/sites/default/files/atoms/files/221133_cp_psychosocialhazards_web.pdf
- Commonwealth Consolidated Acts. (2009). *Fair work Act 2009 - Section 66L*. http://classic.austlii.edu.au/au/legis/cth/consol_act/fwa2009114/s66l.html
- Conchie, S. M., & Donald, I. J. (2006). The role of distrust in offshore safety performance. *Risk Analysis*, 26(5), 1151-1159. <https://doi.org/10.1111/j.1539-6924.2006.00822.x>
- Construction, Forestry, Mining and Energy Union. (2022). *Submission to the statutory review of casual employment legislation*. <https://www.dewr.gov.au/workplace-relations-australia/consultations/statutory-review-casual-employment-legislation/submission/14852>
- Creswell, J. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Sage Publications.
- Creswell, J. W. (2014). *A concise introduction to mixed methods research*. SAGE Publications.
- D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M., & Lagat, C. (2022). Effects of the COVID-19 pandemic on employees' psychological health in the offshore oil and gas industry and opportunities for improvement. *World Safety Journal*, XXXI(2), 1-14. <https://doi.org/10.5281/zenodo.6790705>
- Darvishmotevali, M., & Ali, F. (2020). Job insecurity, subjective well-being and job performance: The moderating role of psychological capital. *International Journal of Hospitality Management*, 87, 102462. <https://doi.org/10.1016/j.ijhm.2020.102462>
- De Witte, H., Elst, T. V., & De Cuyper, N. (2015). Job insecurity, health and well-being. In J. Vuori, R. Blonk & R. H. Price (Eds.), *Sustainable working lives aligning perspectives on health, safety and well-being* (pp. 109-128). Springer. https://doi.org/10.1007/978-94-017-9798-6_7
- Department of Employment and Workplace Relations. (2022). *Electrical Trades Union of Australia*. <https://www.dewr.gov.au/workplace-relations-australia/consultations/statutory-review-casual-employment-legislation/submission/14853>
- Fair Work Ombudsman. (2023). *Casual employment information statement* [Fact sheet]. <https://www.fairwork.gov.au/employment-conditions/national-employment-standards/casual-employment-information-statement>
- Gardner, B., Kristie-Lee, A., Vandelanotte, C., & Rebar, A. L. (2018). Mental health and well-being concerns of fly-in fly-out workers and their partners in Australia: A qualitative study. *BMJ Open*, 8, e019516. <http://dx.doi.org/10.1136/bmjopen-2017-019516>
- Gilfillan, G. (2020). *COVID-19: Impacts on casual workers in Australia: A statistical snapshot*. Parliamentary of Australia. https://parlinfo.aph.gov.au/parlInfo/download/library/prspub/7262636/upload_binary/7262636.pdf
- Henry, P., Hamilton, K., Watson, S., & McDonald, M. (2013). *FIFO/DIDO mental health* [Research report]. Lifeline. <https://mates.org.au/media/documents/FIFO-DIDO-Mental-Health-Research-Report-2013.pdf>
- Hopkins, A. (2006). What are we to make of safe behaviour programs? *Safety Science*, 44(7), 583-597. <https://doi.org/10.1016/j.ssci.2006.01.001>
- James, C., Tynan, R., Roach, D., Leigh, L., Oldmeadow, C., Rahman, M., & Kelly, B. (2018). Correlates of psychological distress among workers in the mining industry in remote Australia: Evidence from a multi-site cross-sectional survey. *PLoS ONE*, 13(12), e0209377. <https://doi.org/10.1371/journal.pone.0209377>
- Kongsvik, T., Fenstad, J., & Wendelborg, C. (2012). Between a rock and a hard place: Accident and near-miss reporting on offshore service vessels. *Safety Science*, 50(9), 1839-1846. <https://doi.org/10.1016/j.ssci.2012.02.003>
- KPMG. (2022). *Review of the fair work amendment (supporting Australia's jobs and economic recovery) Act 2021 (Cth)*.

- Department of Employment and Workplace Relations. <https://www.dewr.gov.au/workplace-relations-australia/resources/review-fair-work-amendment-supporting-australias-jobs-and-economic-recovery-act-2021-cth>
- Landon, L. B., Douglas, G. L., Downs, M. E., Greene, M. R., Whitmire, A. M., Zwart, S. R., & Roma, P. G. (2019). The behavioral biology of teams: Multidisciplinary contributions to social dynamics in isolated, confined, and extreme environments. *Frontiers in Psychology, 10*, 2571. <https://doi.org/10.3389/fpsyg.2019.02571>
- Leka, S., Jain, A., & World Health Organization. (2010). *Health impact of psychosocial hazards at work: An overview*. World Health Organization. <https://apps.who.int/iris/handle/10665/44428>
- Markey, R., & McIvor, J. (2018). Regulating casual employment in Australia. *Journal of Industrial Relations, 60*(5), 593-618. <https://doi.org/10.1177/0022185618778084>
- Mearns, K., & Flin, R. (1995). Risk perception and attitudes to safety by personnel in the offshore oil and gas industry: A review. *Journal of Loss Prevention in the Process Industries, 8*(5), 299-305. [https://doi.org/10.1016/0950-4230\(95\)00032-V](https://doi.org/10.1016/0950-4230(95)00032-V)
- Milliken, F. J., Morrison, E. W., & Hewlin, P. F. (2003). An exploratory study of employee silence: Issues that employees don't communicate upward and why. *Journal of Management Studies, 40*(6), 1453-1476. <https://doi.org/10.1111/1467-6486.00387>
- Moreland, R. L., & Levine, J. M. (2002). Socialization and trust in work groups. *Group Processes and Intergroup Relations, 5*(3), 185-201. <https://doi.org/10.1177/1368430202005003001>
- Morse, J. M. (1994). Designing funded qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 220-235). Sage Publications.
- Moser, A., & Korstjens, I. (2018). Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. *European Journal of General Practice, 24*(1), 9-18. <https://doi.org/10.1080/13814788.2017.1375091>
- National Offshore Petroleum Safety and Environmental Management Authority [NOPSEMA]. (2020). *The safety case in context: An overview of the safety case regime* [Guidance note: N-04300-GN0060 A86480]. <https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A86480.pdf>
- Nielsen, M. B., Mearns, K., Matthiesen, S. B., & Eid, J. (2011). Using the Job Demands-Resources model to investigate risk perception, safety climate and job satisfaction in safety critical organizations. *Scandinavian Journal of Psychology, 52*(5), 465-475. <https://doi.org/10.1111/j.1467-9450.2011.00885.x>
- O'Kane, P., Smith, A., & Lerman, M. P. (2021). Building transparency and trustworthiness in inductive research through computer-aided qualitative data analysis software. *Organizational Research Methods, 24*(1), 104-139. <https://doi.org/10.1177/1094428119865016>
- Österman, C., & Boström, M. (2022). Workplace bullying and harassment at sea: A structured literature review. *Marine Policy, 136*, 104910. <https://doi.org/10.1016/j.marpol.2021.104910>
- Parker, S. K., Fruhen, L., Burton, C., McQuade, S., Loveny, J., Griffin, M., Page, A., Chikritzhs, T., Crock, S., Jorritsma, K., & Esmond, J. (2018). *Impact of FIFO work arrangements on the mental health and wellbeing of FIFO workers*. Centre for Transformative Work Design. <https://www.mhc.wa.gov.au/media/2547/impact-of-fifo-work-arrangement-on-the-mental-health-and-wellbeing-of-fifo-workers-full-report.pdf>
- Parker, S. K., Morgeson, F. P., & Johns, G. (2017). One hundred years of work design research: Looking back and looking forward. *Journal of Applied Psychology, 102*(3), 403-420. <https://doi.org/10.1037/apl0000106>
- Parliament of Australia. (2014). *Migration amendment (offshore resources activity) repeal bill 2014*. https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bld=r5211
- Perrow, C. (1999). *Normal accidents: Living with high-risk technologies*. Princeton University Press.
- Premji, S. (2018). "It's totally destroyed our life": Exploring the pathways and mechanisms between precarious employment and health and well-being among immigrant men and women in Toronto. *International Journal of Health Services, 48*(1), 106-127. <https://doi.org/10.1177/0020731417730011>
- Probst, T. M., & Brubaker, T. L. (2001). The effects of job insecurity on employee safety outcomes: Cross-sectional and longitudinal explanations. *Journal of Occupational Health Psychology, 6*(2), 139-159. <https://doi.org/10.1037/1076-8998.6.2.139>
- Quinlan, M. (2014). Precarity and workplace well-being: A general review. In T. Nichols & P. Armstrong (Eds.), *Safety or profit? International studies in governance, change and the work environment* (pp. 29-44). Routledge. <https://doi.org/10.4324/9781315229751>
- Richardson, S., Lester, L., & Zhang, G. (2012). Are casual and contract terms of employment hazardous for mental health in Australia? *Journal of Industrial Relations, 54*(5), 557-578. <https://doi.org/10.1177/0022185612454974>
- Sampson, H., & Ellis, N. (2021). Stepping up: The need for proactive employer investment in safeguarding seafarers' mental health and wellbeing. *Maritime Policy & Management, 48*(8), 1069-1081. <https://doi.org/10.1080/0308883>

9.2020.1867918

- Sampson, H., Turgo, N., Acejo, I., Ellis, N., & Tang, L. (2019). 'Between a rock and a hard place': The implications of lost autonomy and trust for professionals at sea. *Work, Employment and Society*, 33(4), 648-665. <https://doi.org/10.1177/0950017018821284>
- Sarwar, A., Maqsood, U., & Mujtaba, B. G. (2021). Impact of job insecurity due to COVID-19 on the psychological wellbeing and resiliency of food delivery personnel. *International Journal of Human Resource Studies*, 11(1), 24-44. <https://doi.org/10.5296/ijhrs.v11i1.18075>
- Schreurs, B. H. J., van Emmerik, I. J. H., Günter, H., & Germeys, F. (2012). A weekly diary study on the buffering role of social support in the relationship between job insecurity and employee performance. *Human Resource Management*, 51(2), 259-279. <https://doi.org/10.1002/hrm.21465>
- Stanford, J. (2021, October 4). *Shock troops of the pandemic: Casual and insecure work in COVID and beyond*. The Australia Institute. <https://australiainstitute.org.au/report/shock-troops-of-the-pandemic/>
- Størseth, F. (2006). Changes at work and employee reactions: Organizational elements, job insecurity, and short-term stress as predictors for employee health and safety. *Scandinavian Journal of Psychology*, 47(6), 541-550. <https://doi.org/10.1111/j.1467-9450.2006.00548.x>
- Sultana, N., Asaduzzaman, Md., Siddique, A. B., Khatun, H., Bari, F. S., Islam, Md. N., Tabassum, A., Mondol, A. S., Sayem, Md. A., Abdullah, A. Y. Md., Hossain, M. P., & Biracyaza, E. (2022). Job insecurity and mental health related outcomes among the humanitarian workers during COVID-19 pandemic: A cross-sectional study. *BMC Psychology*, 10, 265. <https://doi.org/10.1186/s40359-022-00974-7>
- Sutherland, K. M., & Flin, R. H. (1989). Stress at sea: A review of working conditions in the offshore oil and fishing industries. *Work & Stress*, 3(3), 269-285. <https://doi.org/10.1080/02678378908251563>
- Sutherland, V. J., & Cooper, C. L. (1996). Stress in the offshore oil and gas exploration and production industries: An organizational approach to stress control. *Stress Medicine*, 12(1), 27-34. [https://doi.org/10.1002/\(SICI\)1099-1700\(199601\)12:1<27::AID-SMI675>3.0.CO;2-0](https://doi.org/10.1002/(SICI)1099-1700(199601)12:1<27::AID-SMI675>3.0.CO;2-0)
- Underhill, E., & Quinlan, M. (2011). How precarious employment affects health and safety at work: The case of temporary agency workers. *Industrial Relations*, 66(3), 397-421. <https://doi.org/10.7202/1006345ar>
- The University of Adelaide. (2020). *Mind mapping: Writing centre learning guide*. https://www.adelaide.edu.au/writingcentre/ua/media/234/learningguide_mindmapping.pdf
- Van Manen, M. (1990). *Researching lived experience. Human science for an action sensitive pedagogy*. SUNY Press.
- Virtanen, M., Ferrie, J. E., Singh-Manoux, A., Shipley, M. J., Stansfeld, S. A., Marmot, M. G., Ahola, K., Vahtera, J., & Kivimäki, M. (2011). Long working hours and symptoms of anxiety and depression: A 5-year follow-up of the Whitehall II study. *Psychological Medicine*, 41(12), 2485-2494. <https://doi.org/10.1017/S0033291711000171>
- Wang, H. J., Lu, C. Q., & Siu, O. L. (2015). Job insecurity and job performance: The moderating role of organizational justice and the mediating role of work engagement. *The Journal of Applied Psychology*, 100(4), 1249-1258. <https://doi.org/10.1037/a0038330>
- Wheeldon, J. (2018). Reflection/commentary on a past article: "Framing experience: Concept maps, mind maps, and data collection in qualitative research". *International Journal of Qualitative Methods*, 17(1). <https://doi.org/10.1177/1609406918790673>
- Zeytinoglu, I. U., Lillevik, W., Seaton, M. B., & Moruz, J. (2004). Part-time and casual work in retail trade: Stress and other factors affecting the workplace. *Industrial Relations*, 59(3), 516-544. <https://doi.org/10.7202/010923ar>

Appendix

Interview questions

Positioning statement: It has been identified that the offshore oil and gas working environment can be stressful for workers, particularly when considering mental health and wellbeing so it is necessary to investigate the psychosocial stressors which present themselves to employees in this environment and examine the personal, organisational and economic implications of poor mental health caused by these stressors. A work-related mental health hazard is defined as work demands that do not match the workers to their knowledge and abilities or the resources that they have available to do the work. The response can be cognitive, physical, behavioural or emotional. Work-related mental health hazards include, but are not limited to, physically and/or cognitively demanding work, aggression, bullying, interpersonal conflict, under-supervision, over-supervision, lack of constructive feedback, lack of support, lack of respect, work overload, lack of role clarity, poor organisational change management, unplanned work events (e.g., over-time, call-outs), awkward roster design (e.g., mid-swing rotations, working night shifts after traveling during the day), extreme weather conditions, suboptimal living and sleeping conditions (e.g., vibration, restricted living area, high levels of ambient noise, lack of privacy), poor organisational justice, fatigue, burnout, experiencing dangerous occurrences, exposure to trauma, and emergency management. Further, being physically or socially isolated from friends and family may be an additional burden (NOPSEMA, 2021; COSH, 2022; ISO, 2021).

The aim of this interview is to identify mental health hazards and possible solutions to these stressors and inform organisations and policy makers of best practices for preventing, identifying and improving poor mental health in the offshore working environment.

Demographic information

What is your role in the oil and gas industry?

Do you work for a large (more than 200 employees) or small company (less than 200 employees)?

What best defines your work status? You may agree to more than one

- Permanent
- Contractor
- Part of a service company
- Casual

Length of experience in the offshore oil and gas industry?

- Less than 5 years
- 6-10 years
- 11-15 years
- 16-20 years
- 21-25 years
- 26-30 years
- 30+ years

Which age group do you belong to?

- Under 25
- 26-30
- 31-35
- 36-40
- 41-45
- 46-50
- 51-55
- 56-60
- 60+

Exploratory questions

- What are your rostered hours of work and for how many days/weeks at a time are you at a time rostered to work offshore?
- How do you feel about this?
- Have you experienced any management or work organisation factors that have caused you stress? If yes, please explain how this affected your mental health.
- Have you had any time off work due to stress?
- Are there any environmental factors that have affected your mental health when working offshore? If yes, please explain.
- What do you perceive to be the main work-related mental health hazards?
- Have you experienced any psychosocial stressors? If yes, please explain.
- If you have experienced returning to work after an illness or injury, how were your mental health needs considered in your return-to-work plan?
- How does the workplace culture affect whether someone will seek help for stress or poor mental health?
- In what way have you found that the personality of managers affects employee mental health?
- In what way have you found that the personality of co-workers affects employee mental health?
- Does stigma seem to affect poor mental health help-seeking and reporting?
- Have you ever had a psychological illness or suffered from poor mental health?
- If 'Yes':
- Has having a psychological illness or poor mental health had an effect on you financially?
- Have there been any economic effects on your employer or its employees from a worker being stressed or from having poor mental health? If yes, describe the effects.
- Does your employer provide mental health education? If yes, please describe the education provided.
- Does your employer implement any other strategies for mental health promotion or support? If yes, please describe these strategies.
- What interventions or approaches does the company have to develop employee resilience? Resilience is the capacity of a person to recover quickly from difficult situations through having good problem-solving skills that enable the person to cope when there are difficulties.
- In your experience, what have you found most beneficial for improving employee mental health?
- Has the COVID-19 pandemic had any effect on your mental health? If so why?

Exit statement: Is there anything else that you would like to tell me about psychosocial stressors or mental health hazards, what is done well to manage these hazards and if there are opportunities for improvement in managing employee mental health in the offshore oil and gas industry?

References

- ISO 45003. (2021). *Occupational health and safety management — Psychological health and safety at work — Guidelines for managing psychosocial risks*. <https://www.iso.org/obp/ui/#iso:std:iso:45003:ed-1:v1:en>
- NOPSEMA. (2021). *Psychosocial risk management* [Guidance note: N-09000-GN1958 A757599]. <https://www.nopsema.gov.au/sites/default/files/documents/2021-12/A757599.pdf>



Article

Psychosocial Safety and Health Hazards and Their Impacts on Offshore Oil and Gas Workers

Emma D'Antoine ^{1,*} , Janis Jansz ^{1,2,3} , Ahmed Barifcani ¹, Sherrilyn Shaw-Mills ^{1,2}, Mark Harris ⁴ and Christopher Lagat ¹

¹ Department of Petroleum Engineering, WA School of Mines: Minerals, Energy and Chemical Engineering, Curtin University, Bentley, WA 6102, Australia; j.jansz@curtin.edu.au (J.J.); a.barifcani@curtin.edu.au (A.B.); sherrilyn.shaw-mills@hseglobal.com (S.S.-M.); christopher.lagat@curtin.edu.au (C.L.)

² HSE Global, P.O. Box 2061, High Wycombe, WA 6067, Australia

³ College of Safety Science and Engineering, Xi'an University of Science & Technology, 58 Yanta Road, Xi'an 710054, China

⁴ Faculty of Business and Law, School of Economics, Finance and Property, Curtin University, Bentley, WA 6102, Australia; mark.harris@curtin.edu.au

* Correspondence: emma.dantoine@postgrad.curtin.edu.au; Tel.: +61-405056624

Abstract: The offshore oil and gas working environment is an inherently dangerous one, with risks posed to physical safety on a daily basis. One neglected field of research is the added psychosocial stressors present in this environment. This research examined the experiences of offshore oil and gas workers through one-on-one online interviews which were recorded and transcribed. Transcripts were analyzed through the qualitative software NVivo, which generated themes and patterns for the responses given to questions that were developed through a focus group. The results of the analysis showed that multiple psychosocial stressors are present in this population, such as fear of speaking up, unsatisfactory company-provided facilities, work-life interference, work status, micromanaging, gender harassment and bullying. In addition, interviews identified that production and time pressures, along with fatigue, can influence accidents and mistakes. Climate factors also cause discomfort. However, these are managed according to best practices by organizations. Due to the timing of the study, COVID-19 was a significant stressor for some, but not all, employees. In conclusion, offshore oil and gas workers face multiple stressors in a dangerous environment that may lead to devastating consequences.

Keywords: psychosocial stressors; offshore oil and gas; workplace health and safety; COVID-19



Citation: D'Antoine, E.; Jansz, J.; Barifcani, A.; Shaw-Mills, S.; Harris, M.; Lagat, C. Psychosocial Safety and Health Hazards and Their Impacts on Offshore Oil and Gas Workers. *Safety* **2023**, *9*, 56. <https://doi.org/10.3390/safety9030056>

Academic Editor: Raphael Grzebieta

Received: 30 June 2023

Revised: 8 August 2023

Accepted: 11 August 2023

Published: 15 August 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Australia's Fly-in, Fly-out (FIFO) workforce has been the subject of increasing interest in terms of psychosocial research [1,2], yet workers in the resource sector who are based offshore remain somewhat overlooked in comparison to onshore workers. There has been an increased risk of suicide among onshore FIFO workers over the last ten years [2]; however, the mental health statistics around the offshore oil and gas workforce are less clear. Added stressors for offshore employees include extreme geographical isolation, longer rosters, extreme weather events such as tropical cyclones, changeable ocean conditions, and helicopter travel. COVID-19 also affected travel, roster arrangements and work safety for this population. The change in rosters during the pandemic resulted in the National Offshore Petroleum Safety and Environmental Management Authority [3] issuing an alert concerning the psychosocial risks of compacted rosters on the mental wellbeing of offshore workers. Rosters had been amended in an attempt to reduce the risk of transmission. However, this meant that workers were spending extended periods of time offshore. Moreover, these changes were made without adequately consulting with offshore employees.

Making psychological health and wellbeing a priority can help contribute to a healthier economy because of mental health's impact on performance and productivity [4,5]. In

addition, organizations that provide empowering opportunities for employees tend to see higher levels of productivity [6] and reduced costs from employee sickness, disability, deaths, poor performance and poor productivity [7]. Failure to address poor mental health in the workplace also negatively affects attendance and accident rates [8].

Assessing and managing risks should significantly lower intervention costs for psychological issues and can reduce absences from work [9,10]. In summary, and in light of the above, the main goals of the study were to investigate the causes of psychosocial stress and the effect of psychosocial stressors on the mental health of offshore oil and gas workers. Due to the identified increased psychological risk to onshore FIFO workers, and the lack of legislation for offshore oil and gas workers in relation to mental health risks, the significance of this study lies mainly in its ability to fill the existing knowledge gap, to identify the work-related factors that affect offshore oil and gas employees' mental health and the effects of poor mental health in this environment. The study found the presence of multiple psychosocial sources of stress that frequently interact. Findings are not only limited to offshore oil and gas populations but can be generalized to remote work settings, such as polar research stations, offshore wind facilities and to other maritime settings.

2. Materials and Methods

The exploratory qualitative study was conducted in Perth, Australia, through a focus group and one-on-one interviews via Microsoft Teams. To analyze the results, NVivo software was used, which allowed themes to emerge from the interview transcripts. Employees working on offshore oil and gas facilities were recruited due to their lived experience. Approval for the study was granted by The Human Research Ethics Committee (HREC) (Ethics Approval number HRE2021-0512).

2.1. Participants

The sample consisted of two groups: 8 members of a focus group and 29 interviewees, 5 of whom were part of a pilot study, providing a total of 37 participants, 33 of whom were male and 4 who were female. The age of participants in the pilot and main studies ranged from 25 years to 60+ years. A total of 17 employees described themselves as permanent, 4 as casual workers, 7 as contractors and one as a casual contractor. All respondents in the study worked 12 h days, with no days off, while offshore. Roles were varied and included, but were not limited to, Integrated Rater, Engineer, Cook, Health and Safety Advisor, General Service Operator and Electrician.

2.2. Procedure

All interviews were video recorded and transcribed. The questions were formed from a focus group session held prior to the interviews and from a review of published literature related to offshore oil and gas work. This review of published literature identified several main mental health hazards. Anxiety and depression were found among workers who endured long, uneven or revolving shift patterns [11–13]. Workplace bullying and interpersonal conflict had caused anxiety and negative safety outcomes [14], as well as depression and elevated suicide risk [15]. Poor sleep quality for offshore workers was linked to anxiety [16] as well as depression and mood disorders [11]. The isolation of FIFO work has been associated with higher levels of anxiety [2,17] and stress [18]. Low job latitude or control was shown in some studies [11,19] to be linked to anxiety and stress. The published literature was related to offshore oil and gas workers internationally and was not specific to Western Australia. The questions were of an open-ended design, which, according to Creswell [20], enabled respondents to answer as accurately and genuinely as possible. Appendix A contains the questions asked in the focus group, and Appendix B details the main study interview questions with changes made after the pilot study.

2.3. Analysis

From the transcribed documents, notes were made in a researcher's diary. From the transcripts of the video recordings, sections of answers were entered into NVivo. All interviewees were anonymous and given numbers 1–37. Once the data had been imported into NVivo, the software sorted similar items and applied codes and sub-codes, which combined the items under predominant themes. The process of classifying and arranging data assisted in identifying the themes that emerged from the interviews and focus group participants' responses. The coding gathered central responses to the research goals in collective nodes and provided results that are reliable, as when repeated searching for similar connections is performed, the same results produce the same computer-generated results, pointing to the strong validity and reliability of the findings. NVivo uses several tools to ascertain these links, ensuring methodical and valid results are generated. Furthermore, the software minimizes the occurrence of automatic and human errors [21]. The analysis of qualitative data through NVivo software strengthened the validity and reliability of the analytical process [22]. The findings were compared to the results of the literature review.

3. Results

The questions were developed from the focus group analysis, and any modifications were finalized after the pilot study. There were 19 final questions in the main study, which covered a wide range of topics. The questions asked of the participants are included in this article's Appendix A for the focus group and Appendix B for the interviewed participants.

3.1. Main Themes of the Study

From the analysis, themes emerged which were central to the experiences of employees in the Australian offshore oil and gas working environment. A combination of psychosocial factors significantly impacts the safety of offshore facilities. The following themes were revealed in the analysis.

3.1.1. Inadequate Accommodation, Food and Internet

Participants stated that they were generally unhappy with the accommodation provided. Securing any time alone is extremely rare, particularly in living areas like cabins or the gymnasium:

'But yeah, this vessel—2 people to a room and the accommodation's very small, the gym's very small even though it's well stocked and so you can't get any space to yourself, like just a tiny piece is quite hard and that's very challenging and so then off the back of that when you do get that room to yourself which happens so infrequently, but if you get a night to yourself like, you just don't tell anybody and just go back to your room and read a book or you don't have to worry about anybody, that's the hardest part is just how close quarters it is all the time'. (P4)

Food quality was revealed to be an important part of life offshore, significantly affecting the morale of workers (P11, P24, P28, P29):

'Poor food can also have a big impact on crew morale, when I worked in Myanmar it was near impossible to get veggies and decent meat and they never put out desserts for night crew. Being stuck there for 9 weeks offshore with the same terrible food each day was pretty awful'. (P29)

Food quality appears to have the potential to affect mood and, consequently, the character of the environment during mealtimes:

'If you make good food, they talk good conversation while they're sitting eating where they only get together for that one hour. So, I try to keep my food at a high standard, so nobody's sitting there talking about what shit food they're getting, you understand?'. (P24)

Employees' communication quality with family members is frequently poor, particularly during peak period usage, for example, when shifts have ended. This was experienced first-hand by the researcher, who lost audio and visual quality frequently during interviews conducted with participants while they were offshore. Loss of connection was a common complaint from participants:

'It can sometimes be a little bit of a burden because you're obviously not seeing your family every day. It's hard to compensate face-to-face time with phone time. So yeah, it's a challenge. . .the internet connection or the phone connection that can sometimes impact your mental health'. (P17)

3.1.2. Accidents and Mistakes

In particular, the effects of fatigue and long rosters have a significant effect on levels of alertness. In addition, time pressures on tasks become a significant contributing factor in the causation of accidents when production expectations are high. Participant #8 explained the perceived pressure to finish tasks, the perception that they have to get their job done. They are unwilling or do not want to speak up, and this is a significant reason why a large number of accidents are caused. The time pressures that offshore workers perceive are reflected in the concerns about safety shared by P8:

'They don't realise really, that's secondary to people not getting hurt, but that comes from lump sum contracts. The companies are letting lump sum contracts and the contractors that bid on them as cheap as possible and the faster they go the more money they make'.

After events such as unplanned shutdowns, workers feel pressure to get production going again (P22). A production-focused organizational or managerial culture leaves employees feeling stressed and unimportant:

'I've seen managers and supervisors with that old school mentality of, OK, let's go, go, go grind, hustle. Let's get this done as quick as we can. I don't care. But that's my number one and everything else is number two. And you can really tell that that sort of mentality and that sort of message that's being driven is really causing, yeah, that that sense of anxiety, that sense of they don't really have a purpose. They're just a number on a page or a person completing work who's there for two weeks and then they're off and they're not part of that team'. (P26)

Accidents can also be caused by a lack of focus due to personal issues. P13 had witnessed a near-miss accident involving a co-worker who was in the wrong frame of mind:

'I've seen it, you know, someone wasn't in the right frame of mind one day because we had a morning meeting and two guys luckily didn't get killed, but were close. And all because the guy's head wasn't in in the right spot. He operated a crane and whatnot. . .yeah. His head wasn't thinking straight and operated the crane in the wrong manner. And the headache block parted from the wire and narrowly missed two people. And you know, just mental health wasn't in the right game, you know, at the time. So yeah, from a cultural perspective there's, you know, make sure that people when they go to do a high-risk task they've got their thinking hat on and you know if people aren't in the right frame we try and, from a work perspective, try and make sure that people are in the right frame of mind when they're doing a high-risk task'.

3.1.3. Fear of Speaking Up

Raising concerns about safety issues is often avoided due to fear of repercussions such as job loss. Fear of speaking up is generally found more frequently among casual or temporary workers:

'So that the casual guys, if they do it, they don't get the call back. . . and the threats from people who have the power to not reemploy people is one of the big issues'. (P13)

The results of the main study reflect the findings of the focus group, where casual workers spoke of their reluctance to express their dissatisfaction with aspects of their work.

Fear of speaking up extended to the stigma around men reporting mental health issues:

'I think people tend to assume that if they are having mental health problems, they may be deemed unfit to work offshore and might lose their jobs'. (P29)

There appear to be different working 'spaces' with the oil and gas industry. Participant #33 explained:

'From what I've seen and what I've seen that the FPSO like I was saying is the pinnacle of where everyone wants to be, but I've seen the other side of the coin, which is in in drilling, and the bravado and the looking down upon people that have, you know, shown any sort of weakness. It's pretty disgraceful out there'.

As well as the drilling working environment, the diving community in offshore oil and gas is typically masculine, and the effect of workplace culture on whether someone will seek help for poor mental health is 'massive' (P4):

'So, nobody would ever in the diving culture seek that and not make that aware because diving's... number one, you don't want to be mentally weak at all, like you would never show weakness in diving, ever... I think there would be (stigma) for sure because people, especially in diving, you don't want to lose trust in somebody. You know, you are trusting your life because if someone's going to come rescue you, it could be that guy, you know. And it's very much any weakness... do not show any weakness you know? Probably less so above the water, but it's still the same. It's still very much a macho... that classic machismo or whatever it is'. (P4)

Not speaking up in the context of the macho culture of a male-dominated workplace extends to reluctance to disclose symptoms of sickness, particularly during the pandemic when symptoms were consistent with COVID-19:

'I have returned to work after having COVID. And for me, I was generally trying to hide any discomfort or physical symptoms I might have had from the aftereffects of it. So, I didn't really speak up about how I was feeling, if I was tired or fatigued. I was trying I guess not to let my co-workers down and I could know that from that period where we had five guys out with COVID at the same time, after they came back, they all went straight back into sort of a 12-h day. And I could tell that affected some of them. You know, they went from doing nothing in the cabin for seven days and isolation to sort of full-time work in the sun, you know, lifting heavy things. So, it's definitely a big adjustment for them'. (P10)

P16 reported a similar experience:

'I got flu. I think I got sick because the Air Con was really cold inside. But then you have to be inside and outside during the whole day, so I think that's what made me sick last. Plus, I think someone was sick as well. So, they get sick, but they have to continue working. So, like, if you're working and someone is coughing or sneezing, you still need to be there. I think that's why I got sick. But that's the only time and I didn't have even time like to rest or anything. It was just like take pills, continue working, and yeah, hopefully you'll be better next day'. (P16)

'The self-declaration of someone being fit to work, if they are in insecure employment, some have been reluctant to advise on symptoms as they may not pick up work again for some time. Or alternatively when they do advise they have symptoms they are not paid'. (P13)

3.1.4. Casual and Contract Workers

A major finding of the study was that casual and contract workers experience higher levels of stress linked to job status:

'Oh, I also feel the casualization of the whole mining and offshore industry has got a big part to do with it as well because people are scared to speak up about things, like rosters and things. People just want to keep the employers happy, so they've got to do their normal roster and they get that call and it says can you come back two weeks later. As a casual, you're a lot more inclined to say yes, I'll take it, because if you don't take that position, you won't get the call back again'. (P33)

As a casual worker, participant #33 explained that people are unwilling to speak up about injuries:

'There's also, you know, with people hurting themselves or just other things, you know you're a lot less likely to stand your ground, I suppose, as a casual because you just won't get the call back'.

The analysis also showed that there was a culture of blame and fear in some organizations, as well as anxiety around making mistakes. P4, a contractor, reported a lack of accountability, perhaps associated with understaffing and workers' concerns about losing their jobs. A common process that casual workers are subjected to is hiring, firing and rehiring. This avoids organizational duties in the amendments to the Fair Work Act. 2009 (Cth.), which states that employers must offer casual conversion to employees. When the period of offshore work is complete, workers are signed off and paid out, so they are not technically working for the organization anymore. Likewise, P12 had been refused casual conversion several times, the latest being a few days prior to the interview. P26 confirmed the tendency towards blaming contractors but that more mature organizations were attempting to change this trend.

3.1.5. Being Away from Home and Work–Life Interference

Missing out on special events with family and friends was mentioned by several participants (P5, P15, P13, P12 and P21). Being unable to respond to family emergencies happening back home is especially difficult and causes stress to offshore workers (P21, P25):

'With the sickness side of things, my son suffers from asthma. He had quite a serious asthma attack. He was put in hospital and the company actually put me on a flight and sent me home. . . which was good because I wasn't, it was probably dangerous to have me at work because I wasn't concentrating'. (P25)

Likewise, P1 felt that inattention to tasks and lack of awareness caused by issues at home were significant work-related mental health hazards:

'When an employee has issues at home, this can often preoccupy their mind leading to distraction at work. Particularly during high-risk work (where precision is required), this can have a profound effect on their concentration levels. This lack of attention can result in a significant injury particularly in the process driven environment of the offshore industry where a mistake could lead to a catastrophic outcome'.

Not all participants experienced help from their company when they had difficulties back home:

'Like a bloke I know he had time off because his daughter died and he was bullied and harassed by one of the HR managers to get back to work and you know his daughter died of SIDS. . . I think by and large, yeah, that they there's a push to try and push people so they quit'. (P13)

'It's the isolation, you're on an island, a FPSO, a platform, there's no social aspect of life, you are isolated from your family. Worse times are birthdays, Christmas, if someone is in an accident, my son was in an accident and they wouldn't fly me off, but I used to do that, so I know how easy it is to fly people off'. (P21)

Another worker with obvious mental health difficulties was not given the necessary help:

'There was another guy, he had some mental health things going on. He went to work on a ship and when he got home, he stabbed another person. They died. Yeah. So, like he immediately had some mental health things going on, but he was pushed and then he had to get off the ship. And then when he got home, he killed his housemate'. (P13)

'...the boys noticed that he wasn't right. And they phoned the office at the time, and they said you need to get him off, you need to get him off. He's not right. And they said no, no, he said he's OK. So yeah, he's staying. And this guy stayed, went through work and he wasn't right at work, when he got off work, he went home and killed his flat mate'. (P24)

Other issues at home, such as unresolved interpersonal issues (P1, P8, P13) that do not generally warrant an employee being flown off the facility, are worsened by isolation (P15). P8 cited high rates of divorce in their department. Isolation on an offshore facility or vessel tends to worsen family issues, especially if the ability to communicate properly with family, particularly children (P15), is disrupted by poor internet provision (P2, P3, P4, P6, P7, P10, P11, P17, P18). Transitioning back into home life after being offshore for weeks is difficult (P8), and workers feel that they live two separate lives (P28).

3.1.6. Micromanaging

Participants expressed frustration at the tendency for managers to micromanage workers, a damaging practice that reveals a lack of trust in workers (P28). Again, raising safety concerns showed a tendency to cause difficulties for workers:

'I'm in quite a strong trade union, which I'm proud to be. But having said that, that doesn't mean we're, you know, rebellious, but we do the things, but we won't accept anything less on safety or conditions of work and these guys have come in with a pretty intimidatory style, so yeah we were definitely singled out. But you know, you had to watch your back at work in regards to what you did on jobs they, you know, they check up on you, send people out to make, you know, try and catch us out on safety to try and undermine us being on board'. (P6)

One organization excessively controlled food portions. P20, a qualified cook, stated:

'We're all qualified to do our jobs. And the micromanagement is getting out of control in my opinion and not just in my department but in other departments too yeah, they get around it. We all get around it one way or another. But it just makes it stressful. We just wanna go there and do our jobs, you know, and do them safely. Obviously, safety is a big issue. But to micromanage everybody's diets I think is beyond... that's getting to become a control freak I think really'. (P20)

However, the over-regulation of food options may have had more to do with cost:

'So, they really cut down on the budget and they end up, you know, serving sausages and mashed potatoes and stuff like that. So, it's just not a good thing to do, but the effect that it has on, you know, crew morale is, is huge. It's huge, but for whatever reason, companies, you know, we had a KPI. They audit every cent that's spent and you're only allowed a certain amount per head'. (P8)

Several participants had worked under managers who were overbearing, with strong egos (P6, P29), and with *'an intimidatory management style'* (P6). Unfriendly or unsupportive managers caused their workforce to be unhappy and to dread returning to work (P29).

'There was a manager that used to work at our company who has now been let go because of the way he treated people, and everyone that worked with him used to say how much they dreaded going back to work. A previous manager I worked for offshore was extremely demanding and constantly paging me to get updates on what was happening and there was little trust in me, I found this quite mentally taxing and would feel so much more exhausted working under him than his back-to-back'. (P29)

Antithetical to micromanaging is allowing employees role autonomy:

'I think that one plays a big part in affecting mental health. When you go into a job and you know that you've got that autonomy and you've got the trust of your managers and supervisors. It does incentivise you to do better and achieve'. (P27)

3.1.7. Bullying from Higher Up

Bullying was reported in the sample, but it generally came from management-level employees:

'It's generally from higher up because there's always a little bit of banter amongst the team, but generally speaking, I've always found that to be restrained and healthy, you know'. (P22)

Bullying shows similarities with micromanaging in that they both tend to originate from higher up the organizational hierarchy. P21 had experienced exclusion from meetings and trips, demotion and barriers to promotion. P8 advised:

'The only thing that you can do, and, you know, people do do this, they would just start taking notes and with bullies all you have to do is confront them, and you know when you get some evidence behind you and then one day, just confront them and just say this is the last time, like no more because it's always a strong, big strong alpha male picking on the weakest one in the group'. (P8)

3.1.8. Gendered Harassment

A female participant in the focus group did not indicate gendered harassment. P16 stated that workplace culture and the protracted time spent offshore in an unfavorable environment were potentially able to affect workers. However, the respondent did not refer to what made the environment unfavorable. One potential female participant chose not to go ahead with the study due to fear of being identified. The experiences of sexual harassment for this individual were specific enough to potentially identify them to their colleagues. P20 and P29 were both impacted negatively by the male-dominated environment offshore. P20 explained an incident that had happened on a vessel they worked on:

'The incident itself didn't cause me the stress, the stress came afterwards, which I predicted. When other crew members took an opinion about it and most of them that weren't there. So it was like, yeah, it was one of those female things, female-male things that went on anyway. But it was witnessed by three males who stood up for me, but some males think that you're being woke or whatever it is that they've got in their head and they then bully you afterwards and make you feel like you were lying or something like that'.

P29 described their experience of harassment while working offshore:

'I experienced a bit of harassment from one guy who was interested in me when I made it very clear I wasn't interested'.

3.1.9. COVID-19 Impacts

Extended periods away from the family during the COVID-19 pandemic were stressful (P14, P16, P29). Along with extended separation, there were major concerns for loss of work (P4, P7, P24), particularly during economic downturns:

'There's a lot of guys, mariners, that just can't keep up their tickets and things like that and just, you know, just basically get squeezed out of the industry and that's what's happened now. And now everyone is looking for people in WA and you know, a lot of good guys are gone and they can't get back into the industry because they just don't have the money to get their tickets again, like it costs so much for a casual employee on vessels to get all your tickets back again, you know you need a 15 grand kicker straight up there to get into it and you can't get a bank loan because you don't have the money or security so you're kind of stuck. We've lost a lot of good people'. (P33)

Other concerning factors include loss of leave (P24) and coercion to move interstate to circumnavigate state quarantine mandates (P4, P8, P13). During the height of the pandemic, offshore workers experienced increased fatigue and mental health issues:

'We have seen a marked rise in mental health issues, and staff having to demobilise early due to fatigue and mental health. COVID-19 has certainly been one of the root causes of this worrying trend. We have seen a direct link between fatigue and mental health'. (P1)

The procedures put in place by organizations in response to the pandemic were criticized by P22:

'Definitely cause that's why I resigned from a full-time position. You know I'd been there 14–15 years whatever it was. And then I just got sick and tired of being locked up. Told what you're gonna do. Told what you're allowed to eat. Told what you're allowed to drink. The whole way it was managed, if you could call it that, I found very frustrating. And they even, even when the pandemic first broke and we actually raised it with onshore management saying, listen, because we were sailing for Singapore, said have you got anything in place or have you thought about anything around what's going to happen with this? And they laughed at us and said we're watching too much social media. And then we set off for a three-week journey and three months later we got back home and that was after being anchored up there and there was no certainty about how they could get us off or when they could get us off. They wouldn't send food out to the ship because they're worried that we're gonna run out or we're gonna get COVID off the packaging on the food'. (P22)

3.1.10. Heat Stress

High humidity is common between March–May in the southern hemisphere tropics when workers use several pairs of overalls each day (P18). Several participants referred to the heat as a major factor in discomfort (P1, P6, P7, P8, P9, P13, P16, P18, P23, P25, P26, P28). The relentless heat is often unbearable:

'No, just the heat, the oppressive heat. You got heat coming off the equipment. The engine room like it's just hot, hot, hot. We'll do our first three hours, you know, we'll go outside at 7:00 o'clock in the morning and when we come in for smoko at nine, we just have to drop our overalls on the ground and put a fresh set of overalls on. So, we'll do a set of overalls every three hours. You can't come back inside into the air conditioning and with absolutely sweat sodden overalls. Yeah, you just get the chills'. (P8)

Although heat stressors are managed extremely well in the offshore working environment, failure to keep hydrated or to recognize the sign of dehydration can be devastating:

'One of my colleagues, he did get heat stress and ended up in hospital. And unfortunately for that person, he did have some slight brain damage as well. . . . As far as I know, no, he won't be working again, to be honest'. (P28)

4. Discussion

Sex and Gender Statement

The Western Australian offshore oil and gas industry is a male-dominated industry, and an analysis of results was not conducted to determine any differences between male and female participants' responses. A reason for not conducting a gender analysis was

that the research only included four female participants, with the rest of the participants being male.

Company-provided facilities such as accommodation, food and Internet were mentioned frequently by participants. Poor accommodation has wide-ranging negative effects, such as reduced quality of sleep and resulting fatigue [23] and the inability to disengage from work [24]. Fatigue is linked to decreased motivation, communication, attention and recall and reduces an individual's ability to make decisions. Furthermore, there is an increase in the tendency to make errors [25] and perform at a reduced level [26]. Good quality food and sleep are considered to be one of the most important factors in work programs [27]. Providing permanent accommodation alone would significantly help to improve mental health and wellbeing [2] as sometimes the room that workers slept in was changed frequently during their time offshore.

As P13 witnessed, near-miss accidents are highly likely when workers are distracted or not in the right frame of mind. Distracted employees are at a higher risk of being involved in accidents because their ability to identify hazards is reduced [28]. Furthermore, when the focus is on production, particularly after a shutdown [P22], there is a diversion of cognitive resources to concentrate on meeting production targets [28]. When cognitive resources are stretched, concentration and alertness are reduced, and any peripheral safety cues may be missed [29].

Communication between team members is vital for a collaborative work environment. However, speaking up about workplace issues can negatively impact interpersonal communication and connectivity. Casual workers are likely to have less information available to them due to the weaker flow of information, perhaps due to the association between insecure work and work disorganization [30]. Power discrepancies between managers and workers further impair employees' sense of control over work tasks, promotion, and future career options. Being excluded from meetings and trips means that information sharing is further compromised and, consequently, can undermine work performance, which could be a challenge to reverse [31]. Speaking up has been referred to as '*booking a window seat on the next flight out of here*' [32] (p. 16). Several of the interview respondents alluded to the organizational focal point of being in a state of production (P22, P26, P29), notably on drilling sites (P6). In times of high production, employees would be expected to work overtime (P29).

A major finding of the study was that casual and contract workers experience higher levels of stress linked to their job status. Casual conversion is available to employees who have worked a steady pattern of shifts for 6 months and have been with the same employer for over 12 months [33,34]. Unfortunately, 40.9% of casual employees in Australia are disqualified from casual conversion on these criteria [35], and the organization may still refuse conversion based on 'reasonable grounds' [34]. The process of hiring employees for their short-term duration offshore and then terminating their contract and restarting it again for the next offshore swing should not be used as a tactic by organizations to avoid casual conversion or to deprive workers of opportunities to vote on employment matters (P20).

Research on offshore facilities has noted that casual or contract workers have experienced inferior conditions. On North Sea facilities, it was found that contractors generally performed the riskiest work and reported an 'us and them' culture [36] (p. 588). Permanent employees are less willing to trust temporary employees because of their short-term status [37]. Trust between workplace teams may safeguard against the emergence or progression of blame culture within an organization [38]. Because open communication and the flow of information facilitate safety behavior, organizations should seek to build on the manager-employee trust relationship. Giving employees role autonomy will strengthen this relationship, which is crucial if there is to be accountability without blame. Like micromanaging, low role autonomy can lead to feelings of helplessness [14], poor performance [38] and eventually to interpersonal conflict [14,38].

Spending prolonged periods away from home and family on a regular basis means that usual support avenues for workers are unavailable. Where there is conflict between family and work, stress can manifest [7,39–41] to affect attention levels during tasks and safety compliance [42]. Living away from home is a major drawback of working offshore [27], and often there is a resulting difficulty in balancing work and family responsibilities [14,43] and in readapting to family life (P8, [43]). Reintegrating back into the family home is made more difficult by fatigue [2] and by misaligned expectations from both partners (P8).

Micromanaging is associated with low workplace morale, reduced productivity and high levels of employee turnover [44,45]. Supervisors who micromanage their workers suppress creativity [45], underestimating the potential for development and growth within the workplace and the organization as a whole. Furthermore, it places employees at risk of burnout and is a common reason for workers leaving their job [44].

The results consistently showed that bullying came from sources where unequal power relations existed, such as management and other workers. While P20 and P29 experienced gender harassment, other participants had experienced bullying from the management level, a similar finding to other research [2], where results showed that 40.54% of participants identified that bullying came from supervisors or management. Over half of the employees in another study [46] had experienced bullying in the workplace, with close to one-third (32.3%) reporting moderate to severe depression. Both studies examined Australian onshore mine workers. Being a victim of bullying affects employees' intentions to remain with the organization [47]. Other research reported a four-fold increase in psychological distress [48]. Supportive practices opposing bullying to tackle the patterns of masculine norms present in the mining environment are suggested [2], lending weight to the theory that social support is negatively associated with bullying [49].

In a study involving female FIFO workers [50], all participants often felt discriminated against by male supervisors. Furthermore, career progression was difficult due to the barriers to networking opportunities for women. Female oil and gas workers endure an environment of pervasive sexual harassment [51], and two of the four female participants in this study indicated that they were negatively impacted by the male-dominated work environment. Impacts of gendered organizational climate are often experienced as discrimination, harassment and sex-role stereotyping.

When rosters were extended during COVID-19, additional strains were placed upon a population that was already vulnerable to poor mental health and had a higher risk of suicide [2,52]. Rosters for offshore workers are generally lengthier than those for onshore workers, with the shortest offshore roster being two weeks (P29). The longest roster was six weeks away (P11), while during the pandemic, this extended to 3 months away from home for some workers (P22).

The main concerns for participants were catching and transmitting the virus (P1), echoing other recent study findings on offshore workers [53] and through a national survey during the first month of COVID-19 restrictions [54]. In particular, the fear of infecting loved ones or family members caused distress [P1,55], and there had been frustration and nervousness about when the pandemic would end. Research has found poor mental health due to characteristic FIFO stressors together with quarantine measures and fear of job loss [55]. Another common cause of stress was attempting to hide symptoms similar to those of COVID-19, causing presenteeism, which impacts productivity and heightens errors and accident risk, increasing the likelihood that employees will become absent in the future with worsening physical and mental health [56]. Echoing these results, many participants in this study who traveled interstate to work offshore were often kept away from family for months at a time, causing understandable distress [55]. Confinement and restrictions were significant issues for P20 and P22, which mirrors other authors' findings [57] of frustration at being confined and restricted from contact with others.

In the tropical Northwest of Australia, daytime temperatures can reach extreme highs. Further climate-specific events include cyclones [58] and humidity [59]. Other situations affected by heat are motion sickness [60], hazardous ocean conditions [61] and helicopter

travel [7,62–64]. Although clothing can function as a protective factor against radiant heat, it also acts as a barrier to the human–environment exchange [65]. Carrying out the most physically demanding tasks between 10–2 pm in the shade (P13) and staying hydrated are practices already in place in some organizations. Colleagues offshore generally look out for each other (P28) and would rather co-workers have a refreshment break than develop heat stress (P22). Fortunately, breaks are well-managed (P9, P18), and there is a stop-work option if it becomes too hot (P13).

Not only can abrupt changes to the weather increase the risk of accidents, but it can also place demands on employees' personal resources. Anticipating the arrival of bad weather may cause psychological stress in the form of perceived time pressures, creating a tense and anxious working environment [14]. Because production and cost pressures are sometimes prioritized, concerns regarding potential accidents increase. Moreover, fatigue can result in a decline in attention, particularly where there are shift rotations. A lack of trust between team members and supervisors is linked to poor interpersonal behaviors and poor communication about safety, decreasing the chance that existing organizational flaws, which may contribute to accidents, can be identified.

5. Conclusions

The main findings of the study can be summed up in the themes identified. There were several sources of stress from company-provided facilities. When considering that the possibility of accidents and mistakes is a stressor, the resulting fatigue from poor facilities is even more important to consider. Being away from home compounds the effects of a stressful environment. Casualization has had major negative effects on the offshore workforce, and the subsequent insecurity contributes to poor mental health. This was worsened by the COVID-19 pandemic when the general trend in employment security took a downturn. This also intensified the reluctance to speak up on work and safety issues due to fear of job loss, blacklisting and discrediting. When speaking out about issues, employees run the risk of bullying and harassment from those whom they are in an unequal power relationship with. Raising safety issues appears to be an unwelcome practice in some workplaces when this should be encouraged in a mature organization.

Prior to the pandemic, research into FIFO workers' mental health and wellbeing had been identifying declining mental health and increasing suicides. This research has revealed significant sources of psychological distress for a seldom researched population, in particular, the female offshore oil and gas workforce.

Author Contributions: Conceptualization, E.D.; methodology, E.D. and J.J.; software, E.D.; validation, E.D. and J.J.; formal analysis, E.D.; investigation, E.D.; resources, C.L.; data curation, E.D.; writing—original draft preparation, E.D.; writing—review and editing, J.J.; visualization, E.D.; supervision, J.J., A.B., S.S.-M., M.H. and C.L.; project administration, C.L.; funding acquisition, C.L. All authors have read and agreed to the published version of the manuscript.

Funding: This research was supported by an Australian Government Research Training Program (RTP) Scholarship.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the Human Research Ethics Office of CURTIN UNIVERSITY (HRE2021-0512, 25 August 2021) for studies involving humans.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data is unavailable due to privacy or ethical restrictions.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

Appendix A

Focus Group Interview questions

Positioning statement: The offshore oil and gas working environment is unique and may hold many psychological stressors for employees. When considered together, these factors may pose a greater than average risk to employees' mental health and wellbeing. This discussion aims to facilitate the development of effective interview questions for the research participants of the study *Identifying Western Australian Offshore Oil and Gas Workers Mental Health Hazards and Risk Control Measures*.

Exploratory Questions:

In your experience, are there any management practices or work organization practices that affect mining industry employees' mental health? If so, please explain.

Do you know of any psychosocial obstacles for employees when returning to work following a work-related injury or ill health, and if so, how do you think that these can be mitigated?

What do you think are the main types of, and causes of, mental health stressors for offshore oil and gas workers? What risk control measures do employers use for these mental health stressors, and how effective do you think they are?

If employees have poor mental health, how does this impact offshore employees' health and safety?

Do you know of any economic effects on organizations when employees have to deal with psychosocial issues and/or poor mental health? If so, what are the economic effects?

What do you think are the economic effects of having good employee mental health practices implemented by the company?

Regarding best practices, what do you find gives the best outcomes for promoting positive mental health for employees in the workplace?

Where do you think that there are opportunities for improvement in promoting positive mental health practices for contractors and workers with ongoing employment in the offshore oil and gas industry?

Exit statement:

Is there anything else that you would like to add to the discussion or anything that you feel was missed?

Appendix B

Main Study Questions

Positioning statement: It has been identified that the offshore oil and gas working environment can be stressful for workers, particularly when considering mental health and wellbeing, so it is necessary to investigate the psychosocial stressors which present themselves to employees in this environment and examine the personal, organizational and economic implications of poor mental health caused by these stressors. A work-related mental health hazard is defined as work demands that do not match the workers to their knowledge and abilities or the resources that they have available to do the work. The response can be cognitive, physical, behavioral or emotional. Work-related mental health hazards include, but are not limited to, physically and/or cognitively demanding work, aggression, bullying, interpersonal conflict, under-supervision, over-supervision, lack of constructive feedback, lack of support, lack of respect, work overload, lack of role clarity, poor organizational change management, unplanned work events (e.g., over-time, call-outs), awkward roster design (e.g., mid-swing rotations, working night shifts after traveling during the day), extreme weather conditions, suboptimal living and sleeping conditions (e.g., vibration, restricted living area, high levels of ambient noise, lack of privacy), poor organizational justice, fatigue, burnout, experiencing dangerous occurrences, exposure to trauma and emergency management. Further, being physically or socially isolated from friends and family may be an additional burden [66–68].

The aim of this interview is to identify mental health hazards and possible solutions to these stressors and inform organizations and policy-makers of best practices for preventing, identifying and improving poor mental health in the offshore working environment.

Demographic information

What is your role in the oil and gas industry?

Do you work for a large (more than 200 employees) or small company (less than 200 employees)?

What best defines your work status? You may agree to more than one:

Permanent.

Contractor.

Part of a service company.

Casual.

Length of experience in the offshore oil and gas industry:

Less than 5 years.

6–10 years.

11–15 years.

16–20 years.

21–25 years.

26–30 years.

30+ years.

Which age group do you belong to?

Under 25

26–30

31–35

36–40

41–45

46–50

51–55

56–60

60+

Exploratory questions

What are your rostered hours of work, and for how many days/weeks at a time are you at a time rostered to work offshore?

How do you feel about this?

Have you experienced any management or work organization factors that have caused you stress? If yes, please explain how this affected your mental health.

Have you had any time off work due to stress?

Are there any environmental factors that have affected your mental health when working offshore? If yes, please explain.

What do you perceive to be the main work-related mental health hazards?

Have you experienced any psychosocial stressors? If yes, please explain.

If you have experienced returning to work after an illness or injury, how were your mental health needs considered in your return-to-work plan?

How does the workplace culture affect whether someone will seek help for stress or poor mental health?

In what way have you found that the personality of managers affects employee mental health?

In what way have you found that the personality of co-workers affects employee mental health?

Does stigma seem to affect poor mental health help-seeking and reporting?

Have you ever had a psychological illness or suffered from poor mental health?

If 'Yes':

Has having a psychological illness or poor mental health had an effect on you financially?

Have there been any economic effects on your employer or its employees from a worker being stressed or from having poor mental health? If yes, describe the effects. Does your employer provide mental health education? If yes, please describe the education provided.

Does your employer implement any other strategies for mental health promotion or support? If yes, please describe these strategies.

What interventions or approaches does the company have to develop employee resilience? Resilience is the capacity of a person to recover quickly from difficult situations through having good problem-solving skills that enable the person to cope when there are difficulties.

In your experience, what have you found most beneficial for improving employee mental health?

Has the COVID-19 pandemic had any effect on your mental health? If so, why?

Exit statement:

Is there anything else that you would like to tell me about psychosocial stressors or mental health hazards, what is done well to manage these hazards and if there are opportunities for improvement in managing employee mental health in the offshore oil and gas industry?

References

1. Bowers, J.; Lo, J.; Miller, P.; Mawren, D.; Jones, B. Psychological distress in remote mining and construction workers in Australia. *Med. J. Aust.* **2018**, *208*, 391–397. [CrossRef]
2. Parker, S.K.; Fruhen, L.; Burton, C.; McQuade, S.; Loveny, J.; Griffin, M.; Page, A.; Chikritzhs, T.; Crock, S.; Jorritsma, K.; et al. Impact of FIFO Work Arrangements on the Mental Health and Wellbeing of FIFO Workers. Centre for Transformative Work Design. 2018. Available online: <https://research-repository.uwa.edu.au/en/publications/impact-of-fifo-work-arrangements-on-the-mental-health-and-wellbei> (accessed on 12 June 2023).
3. National Offshore Petroleum Safety and Environmental Management Authority. COVID-19 Roster Changes. 2020. Available online: <https://www.nopsema.gov.au/offshore-industry/safety/covid-19> (accessed on 5 June 2023).
4. Department of Mines, Industry Regulation and Safety. Mentally Healthy Workplaces Audit—Technical Guide. 2020. Available online: <https://www.commerce.wa.gov.au/publications/mentally-healthy-workplaces-audit-tool-and-technical-guide> (accessed on 13 March 2023).
5. Wright, T.A.; Cropanzano, R. Psychological well-being and job satisfaction as predictors of job performance. *J. Occup. Health Psychol.* **2000**, *5*, 84–94. [CrossRef]
6. Zacharatos, A.; Barling, J.; Iverson, R.D. High-performance work systems and occupational safety. *J. Appl. Psychol.* **2005**, *90*, 77–93. [CrossRef]
7. Sutherland, V.J.; Cooper, C.L. Stress in the offshore oil and gas exploration and production industries: An organizational approach to stress control. *Stress Med.* **1996**, *12*, 27–34. [CrossRef]
8. James, C.; Tynan, R.; Roach, D.; Leigh, L.; Oldmeadow, C.; Rahman, M.; Kelly, B. Correlates of psychological distress among workers in the mining industry in remote Australia: Evidence from a multi-site cross-sectional survey. *PLoS ONE* **2018**, *13*, e0209377. [CrossRef]
9. Cotton, P. Management of injured workers with psychosocial barriers. *Aust. Fam. Physician* **2006**, *35*, 958–961. Available online: <https://search.informit-com.au.dbgw.lis.curtin.edu.au/documentSummary;dn=360983219989263;res=IELHEA> (accessed on 5 June 2023).
10. Shaw-Mills, S.T. Towards the Prevention of Long-Duration Workers Compensation Claims—Pre-Claim Intervention and Strategy. Doctoral Dissertation, Curtin University, Perth, WA, Australia, 2015. Available online: http://link.library.curtin.edu.au/p?cur_dspace_dc20.500.11937/172 (accessed on 16 September 2022).
11. Berthelsen, M.; Pallesen, S.; Bjorvatn, B.; Knardahl, S. Shift schedules, work factors, and mental health among onshore and offshore workers in the Norwegian petroleum industry. *Ind. Health* **2015**, *53*, 280–292. [CrossRef]
12. Žeželj, P.S.; Cvijanović Pelozo, O.; Mika, F.; Stamenković, S.; Mahmutović Vranić, S.; Šabanagić Hajrić, S. Anxiety and depression symptoms among gas and oil industry workers. *Occup. Med.* **2019**, *69*, 22–27. [CrossRef]
13. Torquati, L.; Mielke, G.I.; Brown, W.J.; Burton, N.W.; Kolbe-Alexander, T. Shift work and poor mental health: A meta-analysis of longitudinal studies. *Am. J. Public Health* **2019**, *109*, 13–20. [CrossRef]
14. Nielsen, M.B. Bullying in work groups: The impact of leadership. *Scand. J. Psychol.* **2013**, *54*, 127–136. [CrossRef]
15. Miller, P.; Brook, L.; Stomski, N.; Ditchburn, G.; Morrison, P. Bullying in Fly-In, Fly-Out employees in the Australian resources sector: A cross-sectional study. *PLoS ONE* **2020**, *15*, e0229970. [CrossRef] [PubMed]
16. Parkes, K.R. Work environment, overtime and sleep among offshore personnel. *Accid. Anal. Prev.* **2015**, *99*, 383–388. [CrossRef] [PubMed]

17. Henry, P.; Hamilton, K.; Watson, S.; McDonald, M. *FIFO/DIDO Mental Health Research Report 2013*; Perth Lifeline: Perth, WA, Australia, 2013.
18. Parkes, K.R. Shift schedules on North Sea oil/gas installations: A systematic review of their impact on performance, safety and health. *Saf. Sci.* **2012**, *50*, 1636–1651. [CrossRef]
19. Karasek, R.A. Job demands, job decision latitude, and mental strain: Implications for job redesign. *Adm. Sci. Q.* **1979**, *24*, 285–308. [CrossRef]
20. Creswell, J.W. *A Concise Introduction to Mixed Methods Research*; SAGE Publications: Newbury Park, CA, USA, 2014.
21. Dhuria, D.; Chetty, P. Explaining Validity and Reliability of Qualitative Data in Nvivo. Knowledge Tank; Project Guru. 2017. Available online: <https://www.projectguru.in/explaining-validity-reliability-qualitative-data-nvivo/> (accessed on 22 June 2023).
22. O’Kane, P.; Smith, A.; Lerman, M.P. Building transparency and trustworthiness in inductive research through computer-aided qualitative data analysis software. *Organ. Res. Methods* **2021**, *24*, 104–139. [CrossRef]
23. Commission for Occupational Safety and Health. Mentally Healthy Workplaces for Fly-In Fly-Out (FIFO) Workers in the Resources and Construction Sectors—Code of Practice. Department of Mines, Industry Regulation and Safety, Western Australia. 2019. Available online: <https://www.commerce.wa.gov.au/publications/mentally-healthy-workplaces-fly-fly-out-fifo-workers-resources-and-construction-sectors> (accessed on 13 May 2023).
24. Mette, J.; Velasco Garrido, M.; Harth VPreisser, A.M.; Mache, S. “It’s still a great adventure”—Exploring offshore employees’ working conditions in a qualitative study. *J. Occup. Med. Toxicol.* **2017**, *12*, 35. [CrossRef]
25. Landon, L.B.; Douglas, G.L.; Downs, M.E.; Greene, M.R.; Whitmire, A.M.; Zwart, S.R.; Roma, P.G. The behavioral biology of teams: Multidisciplinary contributions to social dynamics in isolated, confined, and extreme environments. *Front. Psychol.* **2019**, *10*, 2571. [CrossRef]
26. Jepsen, J.R.; Zhao, Z.; Van Leeuwen, W.M.A. Seafarer fatigue: A review of risk factors, consequences for seafarers’ health and safety and options for mitigation. *Int. Marit. Health* **2015**, *66*, 106–117. [CrossRef]
27. Riethmeister, V.; Brouwer, S.; van der Klink, J.; Bültmann, U. Work, eat and sleep: Towards a healthy ageing at work program offshore. *BMC Public Health* **2016**, *16*, 134. [CrossRef]
28. Namian, M.; Albert, A.; Feng, J. The distracted worker: Effect on hazard recognition and safety performance. In *Construction Research Congress*; ASCE: New Orleans, LA, USA, 2018; pp. 367–377. [CrossRef]
29. Sneddon, A.; Mearns, K.; Flin, R. Stress, fatigue, situation awareness and safety in offshore drilling crews. *Saf. Sci.* **2013**, *56*, 80–88. [CrossRef]
30. Quinlan, M. Precarity and workplace well-being: A general review. In *Safety or Profit? International Studies in Governance, Change and the Work Environment*; Nichols, T., Armstrong, P., Eds.; Routledge: New York, NY, USA, 2013; pp. 29–44. [CrossRef]
31. Milliken, F.J.; Morrison, E.W.; Hewlin, P.F. An exploratory study of employee silence: Issues that employees don’t communicate upward and why. *J. Manag. Stud.* **2003**, *40*, 1453–1476. [CrossRef]
32. Australian Council of Trade Unions. Offshore Workers Need Better Protection. 2020. Available online: <https://www.actu.org.au/our-work/policies-publications-submissions/2020/offshore-workers-need-better-protection> (accessed on 2 June 2023).
33. Fair Work Ombudsman. Casual Employment Information Statement [Fact Sheet]. 2023. Available online: <https://www.fairwork.gov.au/employment-conditions/national-employment-standards/casual-employment-information-statement> (accessed on 3 June 2023).
34. Stanford, J. Shock Troops of the Pandemic: Casual and Insecure Work in COVID and Beyond. 2021. Available online: <https://australianinstitute.org.au/report/shock-troops-of-the-pandemic/> (accessed on 13 May 2023).
35. Gilfillan, G. COVID-19: Impacts on Casual Workers in Australia: A Statistical Snapshot. Research Paper Series, 2019–2020, Parliamentary of Australia. 2020. Available online: https://parlinfo.aph.gov.au/parlInfo/download/library/prspub/7262636/upload_binary/7262636.pdf (accessed on 2 June 2023).
36. Collinson, D.L. Surviving the rigs: Safety and surveillance on North Sea oil installations. *Organ. Stud.* **1999**, *20*, 579–600. [CrossRef]
37. Moreland, R.L.; Levine, J.M. Socialization and trust in work groups. *Group Process. Intergroup Relat.* **2002**, *5*, 185–201. [CrossRef]
38. Conchie, S.M.; Donald, I.J. The role of distrust in offshore safety performance. *Risk Anal.* **2006**, *26*, 1151–1159. [CrossRef] [PubMed]
39. Parkes, K.R. Psychological aspect of stress, health and safety on North Sea installations. *Scand. J. Work Environ. Health* **1998**, *24*, 321–333. [CrossRef] [PubMed]
40. Sutherland, V.J.; Cooper, C.L. *Man and Accidents Offshore: The Costs of Stress among Workers on Oil and Gas Rigs*; Lloyd’s List/Dietsmann: London, UK, 1986.
41. Sutherland, K.M.; Flin, R.H. Stress at sea: A review of working conditions in the offshore oil and fishing industries. *Work Stress* **1989**, *3*, 269–285. [CrossRef]
42. Johnson, R.C.; Eatough, E.M.; Hammer, L.B.; Truxillo, D. Home is where the mind is: Family interference with work and safety performance in two high risk industries. *J. Vocat. Behav.* **2019**, *110*, 117–130. [CrossRef]
43. Mette, J.; Robelski, S.; Kirchhöfer, M.; Harth, V.; Mache, S. Living the 14/14 schedule: Qualitative analysis of the challenges and coping strategies among families of offshore wind workers. *Int. J. Environ. Res. Public Health* **2019**, *16*, 241. [CrossRef]
44. Collins, S.K.; Collins, K.S. Micromanagement—A costly management style. *Radiol. Manag.* **2002**, *24*, 32–35. Available online: <https://pubmed.ncbi.nlm.nih.gov/12510608/> (accessed on 15 May 2023).

45. Irani-Williams, F.; Tribble, L.; Rutner, P.S.; Campbell, C.; McKnight, D.H.; Hardgrave, B.C. Just let me do my job! Exploring the impact of micromanagement on IT professionals. *ACM SIGMIS Database DATABASE Adv. Inf. Syst.* **2021**, *52*, 77–95. [CrossRef]
46. Miller, P.; Brook, L.; Stomski, N.J.; Ditchburn, G.; Morrison, P. Depression, suicide risk, and workplace bullying: A comparative study of fly-in, fly-out and residential resource workers in Australia. *Aust. Health Rev.* **2019**, *44*, 248–253. [CrossRef]
47. Bowling, N.A.; Beehr, T.A. Workplace harassment from the victim's perspective: A theoretical model and meta-analysis. *J. Appl. Psychol.* **2006**, *91*, 998–1012. [CrossRef] [PubMed]
48. Steele, N.M.; Rodgers, B.; Fogarty, G.J. The relationships of experiencing workplace bullying with mental health, affective commitment, and job satisfaction: Application of the job demands control model. *Int. J. Environ. Res. Public Health* **2020**, *17*, 2151. [CrossRef] [PubMed]
49. Baillien, E.; De Witte, H. Why is organizational change related to workplace bullying? Role conflict and job insecurity as mediators. *Econ. Ind. Democr.* **2009**, *30*, 348–371. [CrossRef]
50. Bailey-Kruger, A. The Psychological Wellbeing of Women Operating Mining Machinery in a Fly-in Fly-out Capacity. Master's Thesis, Murdoch University, Perth, WA, Australia, 2012. Available online: <http://ro.ecu.edu.au/theses/1682> (accessed on 13 May 2023).
51. Murphy, K.; Strand, L.; Theron, L.; Ungar, M. "I just gotta have tough skin": Women's experiences working in the oil and gas industry in Canada. *Extr. Ind. Soc.* **2021**, *8*, 100882. [CrossRef]
52. Feringa, A.; Wentzel, N. Smashing the Stigma in Mental Health—A Strategic Blueprint for Change. *APPEA J.* **2020**, *60*, 10–18. Available online: <https://www.publish.csiro.au/aj/AJ19209> (accessed on 23 March 2023). [CrossRef]
53. Baygi, F.; Khonsari, N.M.; Seif, E.; Asayesh, H.; Qorbani, M. The mental health status of offshore oil platform workers during the COVID-pandemic. *Front. Psychiatry* **2022**, *13*, 1009602. [CrossRef] [PubMed]
54. Fisher, J.R.; Tran, T.D.; Hammarberg, K.; Sastry, J.; Nguyen, H.; Rowe, H.; Popplestone, S.; Stocker, R.; Stubber, C.; Kirkman, M. Mental health of people in Australia in the first month of COVID-19 restrictions: A national survey. *Med. J. Aust.* **2020**, *213*, 458–464. [CrossRef]
55. Asare, B.Y.A.; Thomas, E.; Affandi, J.S.; Schammer, M.; Brown, P.; Pilbeam, M.; Harris, C.; Ellison, C.; Kwasnicka, D.; Powell, D.; et al. Mental Well-Being during COVID-19: A Cross-Sectional Study of Fly-In Fly-Out Workers in the Mining Industry in Australia. *Int. J. Environ. Res. Public Health* **2021**, *18*, 12264. [CrossRef]
56. Lohaus, D.; Habermann, W. Presenteeism: A review and research directions. *Hum. Resour. Manag. Rev.* **2019**, *29*, 43–58. [CrossRef]
57. Brooks, S.K.; Webster, R.K.; Smith, L.E.; Woodland, L.; Wessely, S.; Greenberg, N.; Rubin, G.J. The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *Lancet* **2020**, *395*, 912–920. [CrossRef]
58. Bureau of Meteorology Climatology of Tropical Cyclones in Western Australia. 2020. Available online: <http://www.bom.gov.au/cyclone/climatology/wa.shtml> (accessed on 16 September 2022).
59. Department of Mines, Industry Regulation and Safety. Working Safely in Hot Conditions. 2020. Available online: <https://www.commerce.wa.gov.au/worksafe/working-safely-hot-conditions> (accessed on 16 September 2022).
60. Haward, B.M.; Lewis, C.H.; Griffin, M.J. Motions and crew response on an offshore oil production and storage vessel. *Appl. Ergon.* **2009**, *40*, 904–914. [CrossRef] [PubMed]
61. Department of Mines, Industry Regulation and Safety. Cyclone—Emergency Preparation, Planning and Preparedness. 2016. Available online: <https://www.commerce.wa.gov.au/worksafe/cyclone-emergency-preparation-planning-and-preparedness> (accessed on 16 September 2022).
62. Bjerkan, A.M. Health, environment, safety culture and climate—Analysing the relationships to occupational accidents. *J. Risk Res.* **2010**, *13*, 445–477. [CrossRef]
63. Chen, W.; Wong, T.; Yu, T. Influence of occupational stress on mental health among Chinese offshore oil workers. *Scand. J. Public Health* **2009**, *37*, 766–773. [CrossRef] [PubMed]
64. Sutherland, V.J.; Cooper, C.L. Personality, stress and accident involvement in the offshore oil and gas industry. *Personal. Individ. Differ.* **1991**, *12*, 195–204. [CrossRef]
65. Ramsey, J.D. Heat and cold. In *Stress and Fatigue in Human Performance*; Hockey, R., Ed.; Wiley: Hoboken, NJ, USA, 1983; pp. 33–60.
66. Department of Mines, Industry Regulation and Safety (DMIRS). *Psychosocial hazards in the workplace. Draft Code of Practice*; Government of Western Australia: Perth, WA, Australia, 2021; 32p.
67. ISO. ISO 45003:2021. Occupational Health and Safety Management—Psychological Health and Safety at Work—Guidelines for Managing Psychosocial Risks. 2021. Available online: <https://www.iso.org/obp/ui/#iso:std:iso:45003:ed-1:en> (accessed on 16 September 2022).
68. NOPSEMA. Psychosocial Risk Management Draft Guidance Note N-09000-GN1958 A757599. 2021. Available online: <https://www.nopsema.gov.au/sites/default/files/documents/2021-09/A757599.pdf> (accessed on 16 September 2022).

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.

Appendix 16: Article under second round review in *Safety Science*

A theoretical perspective of mental health hazards for offshore oil and gas workers

Abstract

Fly-in, fly-out (FIFO) oil and gas workers experience a specific set of challenges to both their work and personal lives, and offshore workers have to contend with further adverse work, living and environmental factors. An extensive literature review was conducted and it was concluded that there are currently no publications that combine all known stressors for offshore workers. A new model of mental health hazards for offshore oil and gas industry workers has been developed based on the research findings. New knowledge generated includes the dynamic interactions and mediation between variables considered as stressors. Considering published literature's long-standing evidence of the unique psychosocial risks and human factors inherent in an extreme environment such as offshore workplaces, as well as the devastating outcomes evident when human errors occur, the need to include these hazards as part of organisational process safety is long overdue. Findings can be used by managers, occupational health and safety professionals to implement mental health promotion strategies and risk control measures across offshore industries and personnel that operate in isolated or extreme environments. This information can be included in safety cases. Further, future research may guide organisational engineering design when considering psychosocial factors in safety process.

Keywords: Offshore work, mental health, risk control, stress

Introduction

Human error is often implicated in high-profile industrial disasters throughout history (Rodriguez et al., 2017). In fact, accident and incident analyses show that almost all accidents involve human error. A lapse is the most common type of error and occur when individuals know what they are supposed to do and are capable of doing so and are different to mistakes or violations (The Health and Safety Executive, n.d.). Current guidance from National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA, 2020a) states that the identification of hazards should include all forms of operation of the facility and all activities that are likely to take place. This includes human occurrences as well as system and engineering issues (NOPSEMA, 2022). Risk management approaches should aim to minimise the likelihood of error and also prevent the escalation of these errors. Error prevention in particular should be centred on factors which shape performance with the aim of improving human reliability (NOPSEMA, 2021). Performance-shaping factors in the management of human reliability can be job-related, individual-related or organisation-related and optimising these factors is essential to improve human reliability and minimise human failure (DMIRS, n.d.). Considering human factors in engineering and design is recognised as an error prevention strategy by NOPSEMA (2021), and as human error is estimated to be responsible for between 70-100% of accidents (NOPSEMA, 2021), it is surprising that identifying psychosocial hazards in high-risk workplaces is not a critical requirement.

Mental health is as important as physical health in the workplace. In terms of organisational health and safety, it is vital to understand hazards in order to manage the factors which may lead to injury and maintain a safe and productive working environment. Psychological injury can affect worker health both physically and mentally, even if it is a seemingly small incident. Physical, emotional and behavioural symptoms affect physical health, mood and performance. Of greatest interest to process safety is the association between poor mental health and accidents. In addition, poor performance, poor interpersonal relationships both at home and at work and the use of drugs and alcohol increases when behavioural health is affected by psychological injury (WorkSafe ACT, 2023). Depression has a major effect on lapses and may result in a person not knowing what to do anymore, not being motivated to do what they should or not being able to do it as well or as quickly as usual. The process safety in workplaces where chemical operations exist needs to ensure that hazardous situations and conditions are avoided, or at least recognised and responded to accordingly. While warning systems such as alarms can assist with recognition of and responses to hazards, process safety essentially depends on people (Schmidt, 2021). Risk assessment of psychosocial hazards should not differ from the processes for assessing all other workplace risks or hazards. There is increasing interest in psychological risk from organisations and industry safety bodies. Process safety should consider human factors during phases of engineering design. Failure to do so can impact performance and safety negatively (Center for Chemical Process Safety, 2021).

Occupation specific stressors in the offshore oil and gas industry are unparalleled in the sense that they occur only within the high-risk environment of a major industry and particularly in a seafaring environment (Nielsen et al., 2011). Occupation specific safety risks include blowouts, transport accidents, diving accidents, damage to the installation structure, dropped objects, cuts and falls (Nielsen et al., 2011). Psychological and psychiatric conditions can affect vital mental and physical requirements to perform tasks safely. Furthermore, alertness levels and coordination can be affected by medication for psychological conditions. Without access to

social and psychiatric support, individuals may present a higher than usual risk to themselves and others (Australian Maritime Safety Authority, 2020).

The very nature of work itself can result in significant challenges for organisations, including absenteeism, interpersonal conflict, poor safety practices, low work commitment, poor work performance and high levels of staff turnover (Jain et al., 2011). Moreover, it reflects badly on an organisation's image and is linked to higher levels of compensation claims (Leka et al., 2003). Being exposed to psychosocial hazards in the workplace is a known factor in causing work-related stress (Leka et al., 2015). Organisational obligations to prevent harm to employees from psychosocial hazards is a fundamental part of the ethical framework of social responsibility, argues Sadłowska-Wrzesinska (2017), where accountable policies and practices aim to reduce exposure to psychosocial hazards and therefore psychological distress. Work stress describes an individual's response to a stressor, or stressors, in the work environment, particularly where job requirements conflict with an employee's ability or resources (Dollard et al., 2010). Karasek (1979, cited in Dollard et al., 2019), does not define stress specifically in the Job Demand-Control model. Rather, the theory alludes to the assumption that it acts as a mediator between stressors at work and poor health. Work stress, occupational stress, and job stress are terms that are used synonymously (Dollard et al., 2019).

Research into the psychological wellbeing of offshore workers is crucial, considering these hazards and their potential to cause significantly higher levels of anxiety (Mette et al., 2018a; Parkes, 1992). Work in the offshore resources sector exposes personnel to both physical and psychological stressors, particularly considering the disruptive shift patterns and demanding psychosocial environment, which have been shown to contribute significantly to fatigue (Parkes, 2012). Landon et al. (2019) found fatigue to be negatively associated with risk perception, which may be explained by Hope et al.'s (2010) finding that a higher level of risk perception resulted in diminished sleep quality.

In keeping with conventional sleep patterns, daytime performance and levels of alertness are consistent across day-shift cycles, however the adaption to night-shift work is generally slow and often incomplete even when employees had worked night shifts for a week. The geographical isolation of offshore facilities tends to be obvious, however its effects on interpersonal relationships should not be underestimated (Landon et al., 2019). Furthermore, working within a limited space can result in employees being unable to separate themselves from work (Mette et al., 2018a) and can amplify stressors such as noise (Gardner, 2003; Haward et al., 2009; Parkes, 2017), a factor which has been shown to increase the prevalence of workplace accidents and near-misses offshore (Rundmo, 1992a). This applies in the case of other environmental conditions, such as humidity and high temperatures (DMIRS, 2020b; Rundmo, 1992a). Accommodation on offshore facilities, particularly cramped accommodation, contributes towards both psychosocial and physical stress (Parkes, 2012). Although one of the primary sources of noise from ocean waves in Haward et al.'s (2009) study was from waves impacting the vessel, ocean conditions were identified in several studies to be a source of both physical and psychological stress (Chen, 2009; Parkes, 2010; Parkes, 2015).

Extended working hours contribute towards the low levels of psychological wellbeing for offshore workers and are reported by several authors (James et al., 2018; Parkes, 2010). Time demands have a significant relationship with work stress (Behson, 2002), where an escalation in time demands results in higher levels of job stress (Wu, 2016). Long absences from family and friends can lead to poor mental health (Landon et al., 2019) and difficulty getting used to family life when back onshore (Mette et al., 2019).

DiRenzo et al. (2011) found higher levels of work-family interference for those with a higher job status, where job demands and work hours mediated between job level and work-family interference. Furthermore, there were significant interactions between job autonomy and family-supportive organisational culture. While lower-level roles feature a high level of standardisation, tend to be routine and are less likely to be influenced by greater job autonomy, higher level workers may use autonomy to structure work demands to positively influence the family-work relationship. Improved workplace wellbeing has been shown to have multiple benefits, and aside from raising levels of staff morale, can positively influence levels of productivity and job satisfaction (Shaw-Mills, 2015). Elovainio et al.'s (2002) examination of the perceived justice of organisational procedures such as decision making, together with interpersonal relationships, as an indicator of psychosocial health produced significant results for low organisational justice and poor health (self-rated) across several professions.

Baillien et al. (2011) urged to consider workplace bullying together with job demand factors, where they found that high job demands (job strain) and low job control were associated with being a perpetrator of bullying. The Baillien et al. (2009) qualitative case study showed that job demands and control were considered to be contributing factors to job strain. Claimants with psychological injury cases have been found to generally possess lower levels of resilience and poorer coping skills (Shaw-Mills, 2015) and are less likely to report job satisfaction.

The cognitive appraisal theory of stress, or stress-appraisal theory (Lazarus & Folkman, 1984) assumes that stress is objective, that each individual will perceive stress differently. Appraisal has been shown to be a predictor of problem-focused coping, which utilises strategies that focus on attempting to influence the problem rather than accepting it (emotion-focused coping). Situations which involve high levels of stress generally result in more defensive and emotional behaviour. Managing the problem entails identifying it, then developing an alternative resolution (Lazarus & Folkman, 1984).

Psychosocial safety climate (PSC) is a theory of work stress which addresses the efforts by organisations to protect employee mental health and safety. PSC encompasses a wide range of organisational measures to prevent work stress, prioritise mental health rather than production, and commit to communicating about mental health and wellbeing (Dollard & Bakker, 2010). Loss of individual resources in response to work stress has shown a significant association with disengagement from work (Demerouti et al., 2001; Dollard & Bakker, 2010), however work engagement appears to be positively affected by PSC (Dollard et al., 2019).

Workplaces with low levels of psychosocial safety climate were found by Becher and Dollard (2016) to have significantly higher levels of absenteeism due to sickness compared to high PSC work environments, where workers took 43 percent more days off per month. Moreover, performance loss for those in low PSC work environments was 72 percent higher and for workers with severe depression, this figure was 270 percent higher than high PSC workplaces. Becher and Dollard (2016) estimated the total cost of depression to Australian organisations to be \$6.3 billion each year, with an average cost of \$23,143 annually for severe depression.

As a result of sleeping during the day, which is generally a time that the body and brain are alert, night shift workers experience poorer quality of sleep (Fossum et al., 2013). The circadian readaptation that occurs during shore leave has a significant effect upon family life (Merkus et al., 2017; Parkes, 2015), which can lead to individuals becoming socially isolated and contribute to poor mental health (Torquati et al., 2019).

The present outbreak of coronavirus (COVID-19) has compounded the psychological effects of isolation and concerns around job security. Anxiety in the general population is estimated to be at a higher rate than before the pandemic (NOPSEMA, 2020b). A significant association between moderate to very high levels of mental distress and uncertainty regarding employment was found by James et al. (2018). During the COVID-19 pandemic, layoffs caused employees in the Norwegian offshore oil and gas industry psychological distress, the impact of which was felt the most in 2020 (Petroleum Safety Authority Norway, 2021). Employees who work between facilities and are for the most part contractors are termed “nomads” by Tharaldsen et al. (2010, p. 1063). They tend to not only work around groups (in terms of Moreland and Levine’s (1982) model of group socialisation) due to short-term workplace membership and thus the collective groups within them, but they also exist within an ‘us and them’ culture (Collinson, 1999, p. 588) and are also at risk of job uncertainty and job loss which they find a significant source of stress (McKinlay, 2018).

This article has utilised published literature to theorise a comprehensive and transferable model with the aim of helping to enhance the mental health and wellbeing of offshore oil and gas workers. A model of mental health hazards for offshore oil and gas industry workers has been developed based on the research findings of this qualitative study.

The objectives of the literature review were to review the existing published literature on the psychosocial hazards present in the offshore oil and gas industry. Developing an audit tool that identifies the psychosocial risk factors for offshore workers and taking preventative steps to manage psychological injury can mitigate the costs associated with poor mental health and keep employees mentally healthy and engaged in their work (Safe Work Australia, 2019).

Method

Systematic reviews are a crucial part in progressing knowledge. They gather together and present significant breakthroughs and achievements (Hallinger, 2013), helping to place the current research within an existing framework (Kitchenham, 2004). Where a research gap exists, a systematic review will summarise available evidence and provide suggestions for the researcher about further areas of interest (Kitchenham, 2004), at times to a greater degree than an individual study (Cook et al., 1997). Systematic reviews give insights into particular phenomena that can be generalised to other settings and methodological approaches, providing a robustness and transferability when the findings show consistency across contexts (Kitchenham, 2004; Mulrow, 1994).

Validity in literature reviews can be achieved through the demonstration of the authors’ familiarity of the contributions in a particular research area which these authors are and consequent identification of fundamental issues and clear gaps in research (McNabb, 2008). The gaps in research on mental health hazards for offshore oil and gas workers have been identified and are included in this article. In addition, a literature review incorporates the scrutiny of previous authors in the research field. When studying literature reviews that have been published in reputable and peer-reviewed journals, the researcher should be able to rely on the truthfulness and objectivity of the content (Chetwynd, 2022) and this provides validity.

It was necessary to consider studies in other working environments that share similar practices, such as the utilisation of fly-in, fly-out personnel, because up-to-date research into the psychosocial stressors of the offshore FIFO sector is lacking, particularly considering the effect of the COVID-19 pandemic and its impact on offshore rosters and travel. For example, Miller

et al.'s (2020) research examined onshore FIFO mine workers, an important study which identified bullying in the context of the Australian resources sector, both commonalities of offshore oil and gas work.

Search strategy and eligibility criteria

The review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA, 2009) checklist (Moher et al., 2009) and did not filter literature by years.

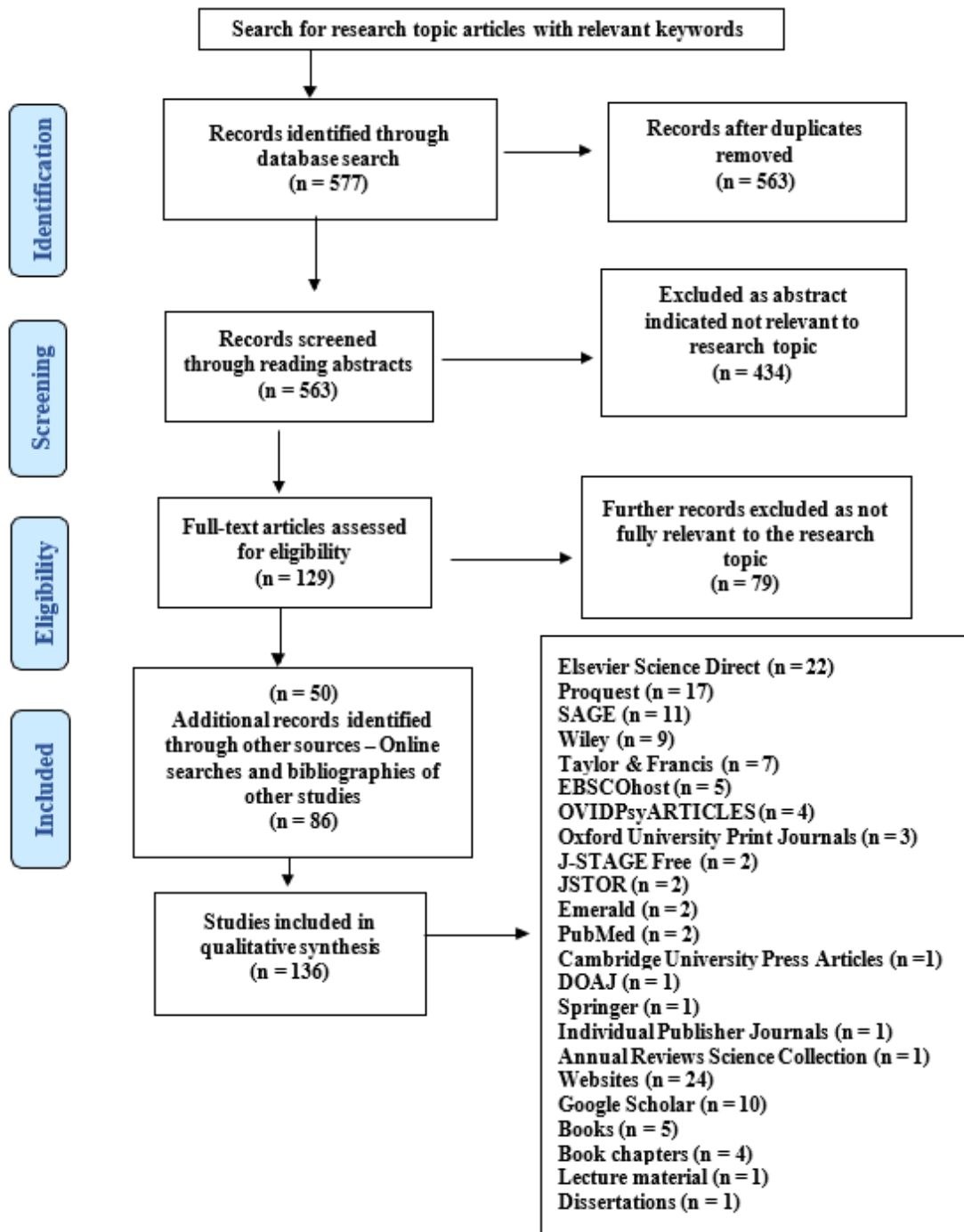
Twelve electronic databases were searched for relevant peer-reviewed articles and books or book chapters. These were Elsevier, Proquest, Wiley, SAGE, Taylor & Francis, OVID PsyARTICLES, JSTOR, J-STAGE Free, Oxford University Print Journals, DOAJ, Emerald and PubMed. Additionally, reference lists of articles located in databased were examined for suitable studies. These were then located electronically, leading to other databases as identified in Figure 1.

Inclusion criteria was information relevant to the topic of mental health factors affecting offshore oil and gas workers. Exclusion criteria were non-English publications and publications not relevant to the topic. Searches were conducted in the English language. Search terms began with "stress and offshore workers", and then narrowed to locate particular factors and generally included "offshore". Further search terms included "Fly-in, fly-out workers and mental health risks", "Job demands-control", "Personality and job stress", "work-family interference offshore workers", "risk perception in offshore work environments", "mental health and leadership style in offshore working environments", "co-worker conflict offshore oil and gas", "isolation and mental health", "bullying in the workplace and mental health" "Offshore job design and health", "job control and job satisfaction", "shift work in the offshore industry", "utilising systematic reviews in research", "psychosocial risks at work", "work stress systematic review" and "safety of offshore helicopter travel". Google scholar was also utilised to locate relevant government and industry reports, and one source of lecture notes was used. Literature included as part of the systematic literature review is identified with an asterisk in the reference list.

Inclusion and exclusion criteria are described in Figure 1 below. The method used for the literature search and screen process is also summarised in Figure 1.

Figure 1

Flow Chart Depicting the Article Search and Selection Procedure



Results and discussion

The themes within the article were developed after an extensive literature review and a discussion between the authors, who have vast knowledge and experience of the offshore oil and gas industry.

The analysis of published literature on the possible causes of mental health hazards in the offshore oil and gas industry has generated seven main themes that are (1) management, (2) work organisation, (3) environmental and chemical and biological factors, (4) situational factors, (5) interpersonal factors (6) personal factors and (7) health. The results of the literature review are shown in Table 1.

Table 1
Common Stressors for Offshore Oil and Gas Workers by Author

Stressor	Common Psychological Effects	Author
Long, revolving or uneven roster patterns	Anxiety	Berthelsen et al. (2015); Pavičić Žeželj et al. (2019); Torquati (2019)
	Depression	Berthelsen et al. (2015); Torquati (2019)
	Difficulty carrying out tasks	Henry et al. (2013); Mette et al. (2017)
<i>[Included in Figure 2 under work organisation]</i>	Disrupted sleep	Torquati (2019)
	Irritability, mood disturbances	Torquati (2019)
	Lower job control	Berthelsen et al. (2015)
	Less able to cope with challenges	Karasek (1979)
	Lower levels of alertness	Jepsen et al. (2015)
	Elevated suicide risk	Parker et al. (2018); Torquati et al. (2019)
Night shifts	Irritability	Sutherland & Cooper (1996)
	Elevated risk of suicidal intent	Parker et al. (2018)
	Poor mental health	Torquati et al. (2019)
Workplace Bullying/interpersonal conflict		
<i>[Included in Figure 2 under management and under interpersonal factors]</i>	Anxiety, negative safety outcomes	Nielsen et al. (2013a)
	Depression	Miller et al. (2019)
	Elevated suicide risk	Miller et al. (2019)
	Poor coordination and vigilance, fatigue	Nielsen (2013)
Workplace Safety		
<i>[Included in Figure 2 under management]</i>	Anxiety	Bjerkan (2010); Henry et al. (2013)
	Stress	Rundmo (1995)
Low job decision/latitude	Anxiety/ Stress	Berthelsen et al. (2015); Karasek (1979)
	Depression	Berthelsen et al. (2015)
<i>[Included in Figure 2 under management]</i>	Agitation, fatigue, sleep disturbances, insomnia	Karasek (1979)
	Attention lapses	Sutherland & Cooper (1996)
	Apathy and disengagement, job dissatisfaction	Karasek (1979)
	Lower levels of risk perception	Rundmo (1992)
Isolation		
<i>[Included in Figure 2 under situational factors]</i>	Anxiety	Henry et al. (2013); Parker et al. (2018)
	Stress	Parke (2012)
	Poor interpersonal relations and team functioning	Landon et al. (2019)
	Disengagement	Mette et al. (2018)
	Psychological distress	Bowers et al. (2018)
Poor sleep quality		
<i>[Included in Figure 2 under work organisation]</i>	Anxiety	Parke (2015)
	Mood disorders, neuroticism, depression	Berthelsen (2015)

Each of the results themes are discussed in relation to being a mental health hazard.

Management

Management is perhaps the largest and most comprehensive section in the model. It incorporates diverse processes under one umbrella. Safety culture, leadership, bullying, stigma and risk management are the overarching themes discussed here. A full list of factors identified in the review is presented in Figure 2. Due to the nature of the concerns for workers at risk of poor mental health, employee wellbeing is discussed in terms of the role of organisational management.

Safety culture

Both Bjerkan (2011) and Parkes (1992) compared onshore and offshore workers and found that those working offshore had higher levels of anxiety (Parkes, 1992) and perceived their working environment as dangerous (Bjerkan, 2011). Furthermore, Bjerkan (2011) found that offshore workers perceived themselves as exerting lower levels of control in their working environment. Workplace safety culture can either enhance or reduce stigma surrounding mental health conditions, as well as affect attitudes towards safety and accident reporting procedures (Bjerkan, 2010; Henry et al., 2013). Reporting of incidents may also be encouraged by a better safety culture (Tharaldsen et al., 2008). Common psychological effects of poor workplace safety can be found in Table 1. Safety culture is affected by leadership.

Leadership

Authentic leadership, which promotes a positive moral environment (Nielsen, 2013), has a direct effect on safety climate ($\beta = 0.45, p < .001$) (Hystad et al., 2013) and, perhaps due to the presence of ethically robust and well-balanced managers, also lessens the risk of being exposed to bullying. Workplaces with supervisors who neglected to foster an environment of collaboration were more likely to experience bullying behaviours in the workplace (OR = 3.04; 95% CI = 1.84–5.04), resulting in participants being almost three times as likely to report an increase of suicide risk (OR = 2.70; 95% CI = 1.53–4.76) and 2.5 more likely to report depression (OR = 2.38; 95% CI = 1.40–4.05) (Miller et al., 2020). Leadership that promotes individual creativeness and encourages new ideas has been linked to higher levels of compliance to safety procedures (Inness et al., 2010). More significantly, authentic leadership directly affects safety climate in the offshore environment, reducing accident risk (Hystad et al., 2013).

Bullying

A well-led organisation can positively influence workers' psychological well-being, safety climate and exposure to bullying behaviours. Being a victim of psychological, verbal or physical abuse is likely to lead to mental health issues such as depression and anxiety (Miller et al., 2020). Often the factors influencing bullying relate to the style of leadership, job demands or job control. Exposure to bullying also affects risk perception (Nielsen et al., 2013a). Interpersonal communication and cooperation can be impeded by bullying factors, creating unsafe environments where alertness, cooperation and communication are reduced, thereby affecting job performance (Nielsen et al., 2013a). Over a quarter of participants in Miller et

al.'s (2020) cross-sectional study of 580 onshore FIFO mine workers were found to be at elevated risk of suicide (Parker et al., 2018).

In Miller et al.'s (2020) research, which the authors state was the first study to examine psychosocial distress in a FIFO setting, over half of employees had experienced workplace bullying in the Australian resources sector, with one third (32.3%) reporting moderate to severe depression. Although this study examined onshore mine workers, several elements of the offshore working environment create additional challenges for both workers and organisations (Parkes, 1992). In organisational research, bullying has even been linked to certain leadership styles, for example utilising emotional intelligence in leadership can discourage workplace bullying (Sheehan, 1999). At an employee level, it has been found to be other work colleagues who are most likely to be the perpetrators of bullying (Petroleum Safety Authority Norway, 2021). Demands such as harassment and bullying share a negative relationship with high organisational PSC and, as a consequence, mental health problems (Law et al., 2011). Common psychological effects of bullying can be found in Table 1.

Stigma

Stigma has been found to be a significant cause of psychological and emotional stress (Bowers et al., 2018). In the Bowers et al. (2018) study of 1124 miners, it was the strongest predictor of psychological distress, with workers affected by this factor being 20 times as likely to experience high levels of mental stress ($OR = 23.5; p < .001$). In addition, 41 percent of participants stated concerns around the stigma attached to experiencing psychological distress and 38.5 percent found the lack of available help to be a further source of stress. Stigma surrounding mental health in the work environment was found by Parker et al. (2018) to be linked to lower levels of happiness and contentment, lower levels of trust and decreased self-acceptance and personal development. In fact, perceived stigma was found to have a significant association with suicidal risk by the authors ($\beta = 0.16, p < .001$).

Several authors point out the benefits of addressing the stigma associated with mental health and its effects on mental wellbeing and help-seeking behaviour. Bowers et al. (2018) and Henry et al. (2013) propose early intervention strategies, with a focus on improving mental health literacy. However, early intervention is difficult when help-seeking behaviours are low, placing workers at risk of further psychological distress (Battams et al., 2014). Workplace culture and the attitudes of colleagues can negatively influence help-seeking behaviours, particularly when an environment is male-dominated and where seeking help may appear weak (Henry et al., 2013). Workers satisfied with options for recovery have improved outcomes for mental wellbeing, lowering their current high level of risk for depression, anxiety and burnout (Parker et al., 2018).

Risk management

Closely related to psychological distress and risk perception is risk management (Nielsen et al., 2013a; Sutherland & Cooper, 1986). Health and well-being is especially influenced by occupational stressors related to safety and a commitment towards safety is associated with reduced levels of anxiety and stress (Bjerkman, 2010), greater job satisfaction (Ulleberg & Rundmo, 1997) and lower injury risk (Bjerkman, 2010). It is therefore imperative to establish a risk management process that is effective and does not rely solely on challenging individual attitudes but works at all organisational levels to improve safety compliance (Chiri & Jansz,

2016). Furthermore, employees must be able to feel comfortable in bringing up concerns about safety. Unfortunately, some FIFO workers have reported bullying and employment loss after challenging safety procedures and practices (Henry et al., 2013). Part of risk management is the way that work is organised, as management influences work organisation.

Work organisation

Shift patterns emerged from the literature as the most common psychosocial stressor for offshore workers. However, subsequent factors are likely to arise from the length or type of shift typical to offshore work. Sleep is affected, which in turn can affect not only the perception of job demands and strain, but also how a fatigued employee will cope with these.

Shift and roster patterns

Working rotating shifts and night shifts is also associated with poor sleep and fatigue. Part of managing psychosocial risk in the workplace involves regulating the way work is organised. Because psychosocial hazards are rooted in the manner in which work is arranged, it can substantially benefit both employers and employees if the psychosocial working environment is favourable, such as improved performance and engagement in work (Dollard et al., 2019; Leka et al., 2015).

It is well established that shift patterns are associated with poor psychological wellbeing and distress (Ljoså et al., 2011; Henry et al., 2013; Berthelsen et al., 2015; Mette et al., 2017; Mette et al., 2018a; Bowers et al., 2018; Commission for Occupational Safety and Health (COSH), 2019; Jansz & Mills, 2020) and at times can negatively affect family relationships (Ljoså et al., 2011).

The adjustment to shift change was also found to be a significant stressor by Henry et al. (2013). A link between shift patterns and an aspect of personality was found in Berthelsen et al.'s (2015) cross sectional study, where revolving shift workers exhibited higher levels of neuroticism ($F(1,291) = 7.821, p = 0.006$). Common psychological effects of roster patterns and shift work can be found in Table 1. Roster patterns can affect an employees' sleep.

Sleep

Further effects of disrupted sleep can be found in Table 1. Fatigue is associated with a decrease in motivation, poor communication, diminished attention, poor recall, reduced decision-making abilities, a more negative view of safety, an increased likelihood of making errors (Landon et al., 2019), reduced performance and time off work (Jepsen et al., 2015). When at home, fatigue can disrupt family life, which in return negatively affects job satisfaction and therefore rates of staff turnover. Furthermore, a high rate of staff turnover generates difficulties in creating and maintaining trusting relationships at work (Henry et al., 2013). Common psychological effects of poor sleep quality can be found in Table 1. Ulleberg and Rundmo (1997) used sleep problems as a measure of the effects of job strain, where high levels of job strain were linked to physical workload, a known type of job demand (Parker et al., 2017).

Job strain

Work strain, or job strain, concerns an individual's reaction to work stressors (Dollard et al., 2019). Job strain is described by Ulleberg and Rundmo (1997) as the adverse effects caused by stress resulting in negative psychological, physical and behavioural responses. At the same time, job demands and control are associated with bullying behaviours. This is the case for both perpetrators and victims of bullying, where high job demands and low job autonomy foster feelings of helplessness and often lead to interpersonal conflict. Because management style and bullying are both closely associated with risk perception (Nielsen, 2013), it is important to consider the literature on both risk management and perceptions of safety and risk. Work strain can be closely linked to job demands.

Job demands

Job demands include all elements of work, whether psychological, physical, social or organisational, that are cognitively or emotionally taxing. Demands can be in the form of work or role overload, shift times, job certainty and job strain (Parker et al., 2017) and are a significant factor in psychological distress (Berg et al., 2018; Nielsen et al., 2013b). Karasek and Theorell (1990) established the role of social support as an additional countermeasure to the effects of job demands (Parker, 2017). In the FIFO sector, long rotations can put workers under more strain and ultimately mean that employees have fewer opportunities to utilise the support from home (Henry et al., 2013). Work expectations should be communicated clearly and comprehensively and demands should be achievable (Bergh et al., 2016).

Maintaining some level of command over work is crucial to cope with challenges (Bergh et al., 2018; Karasek, 1979) and employees should at least be able to manage their pace of work (Bergh et al., 2016). This might be beneficial considering that Demerouti et al. (2001) believe job demands to be associated with the exhaustion aspect of burnout. Being unable to determine the pace of work when job demands are high can lead to loss of energy and therefore loss of motivation (Demerouti et al., 2001; Landon et al., 2019).

Exercising control over work is particularly important where workers are in jobs with high demand because control appears to serve as a buffer between the two. Karasek (1979) points out the importance of considering the effects of both job demands and job decision latitude together to produce a genuine representation of the causes of job strain, as a combination of these two factors have been shown to contribute significantly to depression and anxiety, agitation, fatigue, sleep disturbances, insomnia and difficulty in waking. Karasek (1979) argued that repetition of job tasks eventually becomes unstimulating and unchallenging, despite the fact that it may once have involved a certain level of skill. Repetitive tasks can lead to boredom, apathy and disengagement, resulting in attention lapses and inadequate reactions in emergency situations, particularly at night where the working environment is less stimulating and where circadian readjustment may be occurring (Jepsen, et al., 2015; Sutherland & Cooper, 1996). Job demands should correspond to employees' skills and abilities (Bergh et al., 2016).

As monotonous tasks and jobs which require low levels of decision making are linked to dissatisfaction, apathy and depressive symptoms, Karasek (1979) suggests increasing decision latitude, even when workload is high. Considering that higher levels of job satisfaction are found when there are high job demands and high decision latitude, it could be suggested that poor mental health outcomes associated with job characteristics can be reduced by increasing both job variety and decision latitude, while avoiding negative influences on productivity.

Further benefits of a high PSC workplace are indicated in the literature, such as a reduction in job demands and an increase in job resources (Dollard & Bakker, 2010).

Access to job resources provide employees with a reservoir of personal reserves to enable the individual to continue to perform appropriately, especially at times when demands increase (Hobfoll, 1989; Hobfoll, 2001). In the conservation of resources (COR) theory, resources maintain the focus and motivation needed to carry out tasks. Furthermore, unfavourable aspects of work can be buffered by resources, which acts as a coping mechanism (Salanova et al., 2010), and adding to these resources increases job satisfaction and productivity (Hobfoll, 2001). Having a high level of job control assists in the building of resources and enables resilience in workers (Dollard et al., 2019)

Common psychological effects of low decision latitude can be found in Table 1. As well as being influenced by work organisation, workers in the offshore oil and gas industry can be affected by environmental factors.

Environmental factors

Environmental influences such as extreme weather, humidity and changeable ocean conditions consistently affect the offshore working environment, often creating a perception of high risk and an atmosphere of uncertainty (DMIRS, 2016). Further job stressors that are perceived as being out of an individual's control, such as excessive noise, vibration, poor air quality, confined spaces and exposure to chemical and caustic substances not only have a disruptive effect on physiological and psychological wellbeing, but also compound the effects of an already highly dangerous and stressful work environment (Parkes, 2010). Ocean conditions and weather are also physically challenging to offshore personnel (Bjerkkan, 2010).

Climate and ocean conditions

Unstable weather conditions increase the risk of seasickness, particularly during transfer to offshore installations, a source of stress due to the realisation of the increased risk of transport accidents (Mette et al., 2017). Abrupt changes in weather add an additional demand to offshore employees' personal resources, where the anticipation of bad weather may result in time pressures and become a source of psychological distress (Mette et al., 2017). In this qualitative study, offshore wind workers in Germany ($n = 21$) expressed how changeable weather patterns added further stressors, often resulting in a stressful and tense working environment. Concerns regarding accidents were also higher during bad weather, while there was also a feeling of urgency among employees to finish tasks promptly if abrupt changes in weather were forecast. These time pressures added further stress to workers, particularly when inability to finish work was felt to relate to cost pressures (Mette et al., 2017).

While much research has been conducted on North Sea oil and gas installations (Niven & McLeod, 2009); for example, Hoivik et al., 2009; Nielsen, 2013; Parkes, 2010, 2012, 2017 and Sneddon et al., 2013, there is a distinct lack of research into the environmental conditions faced by workers at offshore facilities in other countries' waters. For example, the North West coast of Australia is vulnerable to extreme weather events, averaging around five tropical cyclones each season, the highest incidence in the southern hemisphere (Bureau of Meteorology, 2020). Mette et al. (2017) revealed that on days where work could not be carried out due to adverse weather events, employees had higher levels of dissatisfaction, reporting feelings of

confinement. In addition to restricting both work activity and travel to and from the facility, cyclones also impede communication efforts and generate uncertainty and unpredictability in the offshore work environment (DMIRS, 2016).

It is challenging to locate appropriate reference studies for offshore work in hot environments and tropical waters. While climate and ocean conditions are mentioned in Chen et al.'s 2008 and 2009 cross sectional survey studies on offshore Chinese oil workers, they are only referred to briefly. Working in hot and humid environments interferes with employee comfort and performance, where a high level of humidity prevents the body from cooling itself by limiting the evaporation of sweat (DMIRS, 2020b). Sleeping in hot environments can affect sleep duration and increase the frequency of wake times (Landon et al., 2019). Ding et al. (2016) made clear the association between adverse weather events such as extreme heat and poor mental health and wellbeing in their study of 53,144 individuals, finding that there was a 0.2% increase in the risk of high distress when there was an increase in temperature or vapour pressure by one unit. Haward et al. (2009) identified climate extremes in the reduction of sleep quality for offshore workers and a possible connection to headache and dizziness, and these symptoms were linked to vessel motion.

Motion sickness

One of the major differences between the onshore and offshore work environment is the continual presence of environmental factors that present added risk to workers' health, safety and lives. In Mette et al.'s (2018a) study, participants stated that the constant motion of the vessel was especially distressing. Diaries from North Sea offshore workers in Haward et al.'s (2009) study showed that employees experienced multiple difficulties with moving and carrying tasks. Furthermore, workers who reported motion sickness and fatigue found that effort to counteract motion effects on work tasks increased with greater motion magnitude. Consistent motion also affected sleep, resulting in mental and physical tiredness.

Vessel motion is strongly associated with negative effects on physical activities such as balance and movement. This is especially so when activities and tasks are performed outdoors. Furthermore, vessel motion can cause sleep problems and physical and mental fatigue (Haward et al., 2009; Jepsen et al., 2015). Cognitive aspects of task performance, plus stomach awareness and dizziness, have also been found to be strongly associated with motion magnitude. Likewise, lower back pain increased as motion magnitude intensified, possibly worsened by difficulties in carrying out physically challenging tasks while moving (Haward, et al., 2009). Noise and vibrations were also found by Haward et al. (2009) to be the most common disrupting environmental factor.

Noise and vibrations

Undesirable working conditions due to permanent noise was rated as being a high stressor for offshore workers. High noise levels can prevent workers from communicating efficiently and disrupt sleep (Gardner, 2003; Haward et al., 2009; Mette et al., 2018a; Sutherland & Cooper, 1986). In Haward et al.'s (2009) study on an offshore oil production vessel, the primary source of noise was from waves banging against the side of the vessel. Although this may not be as much of an issue on larger and steadier production facilities, the presence of the ocean in the environment is still a source of stress. With work continuing throughout the night on an offshore platform, it may be difficult for employees to fully switch off (Parkes, 2012).

Vibrations also impact sleep patterns, resulting in a lighter sleep (Mette et al., 2018a). Focusing on possible negative safety outcomes during hours of darkness may also undermine sleep patterns and further draw attention to changing noises and vibrations (Haward et al., 2009). Chen et al. (2008) and Parkes et al. (1998) make reference to poor ventilation as a stressor, but do not elaborate further. However, good ventilation is vital considering the presence of chemicals offshore.

Chemical risks

The risks associated with chemicals in the processing of liquified natural gas (LNG) are asphyxiation and freeze burns/frostbite. Low viscosity of LNG means that it can penetrate clothing and other porous materials easily. This can happen with just a short duration of LNG release (Barifcani, 2019). Although LNG vapours are not toxic, vapours can accumulate in confined areas and displace oxygen, leading to loss of consciousness and death (Shell Australia Pty Ltd., 2020). Propane (BOC, 2017) and nitrogen (BOC, 2018) can also cause asphyxiation according to proportional oxygen displacement and at high levels. Carbon dioxide may result in asphyxia. Mono ethylene glycol (MEG) can result in central nervous system depression (Petrochem Carless, 2008). Mercury's effects on the central nervous system can cause convulsions, breathing difficulties and loss of consciousness (Thermo Fisher, 2014). Although employees wear PPE, perception of safety can be affected by the presence of hazardous chemicals, acting as psychosocial stressors to workers (Parkes, 2010).

Situational factors

Many situational factors in the offshore working environment are negatively associated with mental health, for example isolation (Bowers et al., 2018) long periods living away from home and family (Mette et al., 2019; Riethmeister et al., 2016) and likelihood of involvement in serious accidents (Nielsen et al., 2013b), so it is not surprising that psychological distress occurs at a higher rate in this population.

Accidents

Involvement in workplace accidents are a source of psychological distress, as are near-miss accidents (Nielsen et al., 2013b). High psychological and emotional demands at work, measured by Swaen et al. (2004) through Karasek's Job Demand Control Model, were found to be significantly associated with the likelihood of being injured at work. Interpersonal conflicts with both supervisors and colleagues were also a risk factor for being in a workplace accident.

As Meams et al. (2001) state, a production-focused organisational culture, where there is inadequate communication relating to safety and formal procedures (Wright, 1986) contributes towards injuries and accidents. This finding was supported by Rundmo's (1994) survey study of 915 offshore employees on the Norwegian continental shelf, which also identified employee and management attitudes to safety, perception of risk and satisfaction with safety systems as predictors of accidents. Once workers have been involved in a workplace accident, risk perception is heightened and thus may affect satisfaction levels with workplace safety systems, ultimately resulting in higher levels of job stress (Rundmo, 1995). An important situational factor that can cause stress is isolation from family and friends.

Isolation from family and friends

Mental health and wellbeing relies heavily on access to communication with friends and family back onshore, with a rise in anxiety and stress levels when these connections are disrupted or limited (Henry et al., 2013; Parker et al., 2018). New work rosters implemented to adhere to COVID-19 isolation requirements have also resulted in concern for negative effects on the mental wellbeing of FIFO workers (NOPSEMA, 2020b), as well as on home and family life (Neis et al., 2020). Extended work rosters implemented to reduce the number of contacts each employee has with other people have raised concerns as to whether there had been sufficient consultation with employees and adequate consideration of psychosocial impacts upon workers and their families (NOPSEMA, 2020b).

In the Riethmeister et al. (2016) study of offshore workers, living away from home was stated as being the leading negative element of offshore work. Workers have expressed regret at not being present at home when issues arise, missing childhood milestones and special events and difficulties in balancing work and family obligations (Mette et al., 2017; Mette et al., 2019). Employees can find that absences from family and home result in difficulties in integrating back into family life (Mette et al., 2019). Re-establishment into the family home is made additionally difficult due to a need for a recovery period, circadian rhythm restoration and an expectation to be 'present' in family life (Parkes et al., 2005). Feeling 'out of the loop' was how one participant in the Torkington et al. (2011) descriptive qualitative study described his experience at times when returning home (p. 137). Moreover, fatigue when arriving home from offshore work has been found to be significant enough to suppress feelings of happiness at returning home (Parker et al., 2018). Workers in isolated and confined areas may find it difficult to disengage from the work environment (Mette et al., 2018a). Common psychological effects of isolation can be found in Table 1. Considering that workers are already disadvantaged both physically and mentally after a rotation offshore, the importance of diet in maintaining good mental health should not be underestimated (COSH, 2019).

Diet

Mette et al. (2018a) point out the importance of suitable food for offshore workers' health and permitting workers to make their own food choices each day as important factors when considering crew satisfaction. In Gibson Smith et al.'s (2015) narrative review, diet for offshore workers was identified as less healthy than for onshore employees (Horsley, 1996; Mearns & Hope, 2005, cited in Gibson Smith et al., 2015), where just 29% of offshore workers reported eating healthily everyday (Mearns et al., 2006, cited in Gibson Smith et al., 2015). Along with inadequate diet, substandard living accommodation can compromise mental health and wellbeing.

Living arrangements

According to COSH (2019), unsatisfactory offshore living arrangements such as inadequate accommodation undermine achieving and maintaining good mental health. Poor accommodation arrangements can negatively affect the amount and quality of sleep, resulting in fatigue (COSH, 2019). The intersection between work and living environment is more difficult for offshore workers due to inadequate space, resulting in a consistent feeling of being in a work setting and making it difficult to disconnect after a shift has ended (Mette et al.,

2017). These authors found that added environmental influences such as confined spaces and shared accommodation prevented psychological detachment from work.

There is no doubt that offshore work environments are among the most isolated in the world. This is evident when considering that helicopter evacuation during an emergency can take several hours (Flin et al., 1997), particularly in hostile ocean conditions (Downie & Gosling, 2020). Social isolation due to remoteness of work location was a leading cause of psychological distress in the Bowers et al. (2018) study on remote mine workers, where 62.2% of workers answered that they suffered psychologically due to social isolation.

Sutherland and Flin (1989) found the uncertainty of the work environment a significant stressor. More concerning, Parker et al. (2018)'s cross-sectional survey study of 3,108 FIFO workers found a significant association between perception of job security and suicidal intent ($\beta = 0.12, p < .001$).

Job insecurity

Job insecurity has been worsened by the current COVID-19 outbreak, prompting NOPSEMA to issue a warning on suggested roster changes to combat spread of the virus. A decrease in the demand for petrol due to COVID lock downs and travel restrictions has exacerbated employment insecurity. As a prompt recovery from current COVID-19 circumstances now seems unlikely, it is more important than ever that psychosocial risks linked with disrupted work rosters and ongoing job insecurity be reconsidered in view of the present outlook (NOPSEMA, 2020b). The presence of job insecurity can affect interpersonal relationships.

Interpersonal factors

Work relationships, particularly when strained, can act as a major source of stress (Sutherland & Cooper, 1986; Sutherland & Flin, 1989), anxiety and depression. In their systematic review of nineteen studies, Battams et al. (2014) found that interpersonal conflict, insufficient or absent workplace cooperation and lack of support were risk factors for depression. Serious workplace conflicts can have adverse effects on interpersonal communication, with the possibility of negative safety outcomes due to a breakdown in collaboration, affecting task performance, coordination and vigilance (Nielsen, 2013). Other negative perceptions and experiences of work lead to unfavourable emotions for the individual but can also affect staff morale. Moreover, high levels of staff morale also help contribute to a higher performing economy (DMIRS, 2020a). Conflicts with supervisors and co-workers also leave employees at higher risk of being involved in a workplace accident, showing that level of support is a crucial factor of the job demands control model (Karasek & Theorell, 1990; Swaen et al., 2004). Social support not only counteracts job demands (Karasek & Theorell, 1990) but also functions as a form of coping (Mette et al., 2018a).

Social support

Not only has social support been found to influence levels of work stress (Mette et al., 2018b) and moderate work strain (Ulleberg & Rundmo, 1997) and its relationship with health issues (Eide et al., 1985). Consistent with this is the finding that the presence of a medic represents a source of support for offshore workers (Mette et al., 2018a). With respect to injury, perceived support levels differ considerably when comparing psychological injuries to physical ones. In the return-to-work process, an employer's management of psychological cases has a significant

effect on return-to-work rates. This applies to both physical (61% return to work rate, where it was felt that the employer had not responded positively) and psychological injuries, but the effect is markedly larger on psychological cases versus (52% return to work rate, where it was felt that the employer had not responded positively) (COSH, 2019).

There should be adequate procedures for both supervisors to support their employees and in turn for employees to support their co-workers, and the environment should be one that is openly committed to listening to individuals and acknowledging their concerns. Workers should also be provided with information on available support and how it is able to be accessed.

Interpersonal relationships at work appear to be important to employees. Sutherland and Flin (1989) found that workers were more concerned about the problems relating to relationships at work and home than about any other single issue.

Interpersonal relationships

Bowers et al. (2018) found that the most prevalent source of stress came from missing special family events while away (86.5% of respondents) and relationship issues with partners (68 percent). Respondents who had stressful partner relationships were eight times as likely to experience mental distress (Bowers et al., 2018). Offshore workers can be away from home for almost half the year (Parkes et al., 2005), so work and family domains consistently compete with each other (Parkes et al., 2005) and it is not surprising that conflict between the two can generate high levels of stress (Sutherland & Cooper, 1986), anxiety and depression (Battams et al., 2014).

Satisfaction with work and home is significantly lowered by work-family conflict and work performance levels are negatively affected. The feeling of 'living two lives' was mentioned in the Parkes et al. (2005) survey of 245 North Sea oil employees, with workers stating that they find partner expectations difficult to meet when at home. Fatigue from the offshore work cycle, demands on attention and reluctance to take part in domestic or social activities add to inter role differences and work-family conflict. For night shift workers in particular, the combination of fatigue and the need for restoration of a diurnal circadian rhythm can result in a disconnection between offshore workers and their partners and family when at home (Parkes et al., 2005).

Personal factors

Personal factors are influenced by, and affect, all other factors. Situational and risk perception are both subjective interpretations, yet it has been shown that risk perception is in fact indicative of actual risk (Rundmo, 1992b). Other important factors to consider are personality, which can affect an individual's perception of their environment and whether people are open to seeking help (Gardner et al., 2018). Low levels of help-seeking have been negatively associated with mental wellbeing (Parker et al., 2018). Coping styles are also suggestive of stress levels and interpersonal conflict (Rotondo et al., 2003) and are subjected to situational perception.

Situational perception

Sneddon et al. (2013) documented that working in the offshore oil and gas industry presents multiple challenges for employees, particularly where stress is concerned. A burden on cognitive resources resulting from stress means that workers are likely to suffer from a

reduction in alertness and concentration. The resulting interference to situational perception arises from the disruption and constriction of an individual's ability to see the complete picture, only allowing a focus on selective elements in a situation, thereby creating the kind of tunnel vision invaluable in an emergency situation, but not particularly helpful in other circumstances (Sneddon et al., 2013). Likewise, the authors state that disregarding peripheral cues to prevent cognitive overload may result in an individual's missing potentially critical safety cues. Situational perception also appears to shift after a workplace accident, where recollection of the event is potentially distorted due to the trauma of the experience (Swaen et al., 2004) and risk perception is heightened, even though the likelihood of being involved in another accident is not increased (Rundmo, 1996).

Risk perception

Risk perception is a predictor of offshore workers' mental and physical health (Eide et al., 1985) and is affected by several factors, particularly social support and commitment to and practice of work safety procedures (Rundmo, 1992a). Its strong link to mental and physical health, (Sutherland & Flin, 1989; Nielsen et al., 2013a), in particular distress and anxiety (Ulleberg & Rundmo, 1997) is evidenced in the literature. Workers who perceive their workplace as safe also report a higher level of management and co-worker support (Gillen et al., 2002), higher levels of job satisfaction (Ulleberg & Rundmo, 1997) and lower levels of stress and anxiety (Bjerkan, 2010). Self-reported occupational accidents appear to be lower where there are positive perceptions of the work safety environment (Bjerkan, 2010).

Risk perception has also been found to be affected by other factors besides social support and commitment to safety practices (Sneddon et al., 2019). Sneddon et al. (2013) found job control, work environment, job satisfaction and attitudes had a positive relationship with safety satisfaction. Hystad et al. (2013) found similar associations, with mental and physical fatigue predicting a negative impression of safety climate. Other research has found a similar negative relationship between job stress caused by poor safety perception and job dissatisfaction (Nielsen et al., 2011). Other factors can heighten the perception of risk, such as the mode of transport to and from site. The majority of employee transfers are conducted using helicopter transport, a major stressor considering concerns surrounding its safety has long been associated with psychological distress (Bjerkan, 2010; Chen et al., 2009; Sutherland & Cooper, 1991, 1996).

Travel to and from site

In the North Sea, helicopter travel is hazardous as a consequence of rough seas, squally weather and difficulty in conducting rescues should an accident occur (Downie & Gosling, 2006). Employees perceive helicopter travel as not only risky, but also uncomfortable due to noise, vibration and unpleasant physical sensations upon take-off and landing (Qian et al., 2011), leading to the transportation of offshore workers by helicopter to be regarded as a major risk (Vinnem et al., 2006). Qian et al. (2011) also point to other risks inherent in transporting offshore workers by helicopter, such as installation obstacles (for example, in 1991 at the Ekofisk installation in the North Sea), mechanical failure (at the Forties oil field in the North Sea in 1976) and component failure (returning from the Brent oilfield in the North Sea in 1986, which was later attributed to pilot error). More recently, a helicopter crash heading to two offshore facilities off the coast of Canada resulted in 17 fatalities in 2009. The resulting inquiry identified major weaknesses in helicopter safety prior to the accident, such as substandard

provisions for search and rescue, lack of emergency apparatus and poorly-fitting suits (Hart, 2019). With such significant stressors, it is important that employees are able to seek and access help when they need.

Help-seeking and coping

Low levels of help-seeking negatively affect mental health (Parker et al., 2018), work performance and productivity, resulting in high staff turnover, absenteeism and psychological compensation claims (Dollard et al., 2009). Whether or not a person is open to seeking help is influenced by many factors, but a lack of social support and stigma are still impeding workers from accessing the help they need (Gardner et al., 2018). Help-seeking as a form of social support is a useful coping strategy, claim Mette et al. (2018a), and its positive effects are consistent across both longitudinal and cross-sectional studies.

In a cross-sectional survey study with 3,108 FIFO workers, disengaging from the problem as a coping strategy was shown to be significantly associated with poor mental health and wellbeing and has been linked to suicidal intent ($\beta = 0.32, p < .001$) (Parker et al., 2018). In a similar vein, problem-focused coping, from the cognitive appraisal model of stress (Lazarus, 1991), resulted in lower family-work interference, supporting the theory that effective coping styles have a significant effect on perceived levels strain and also on family-work conflict (Rotondo et al., 2003), while moderating the relationship between both organisational and personal stress and strain. Personality and its part in the coping process has been studied by researchers due to its possible role in the person-situation interaction.

Personality

Sutherland and Cooper (1991) studied Type 'A' personality, defined by achievement motivation, irritability, restlessness, hostility and work-involvement (Parkes, 1992) in the context of offshore work and found an increased involvement in accidents along with poor mental health, job dissatisfaction and higher levels of perceived stress at home as well as at work. These findings, suggest the authors, are evidence of the modifying role of personality, particularly the neuroticism aspect of the Big Five model, in the perception of stressors and an individual's reaction to them, thus determining a worker's vulnerability to accidents (Sutherland & Cooper, 1991). Extraverted and optimistic individuals have been found to be more likely to seek support, whereas individuals with high levels of pessimism tend to use avoidance coping strategies rather than problem solving resources. Help-seeking behaviour for stressors which affect the family were associated with lower family-work interference (Thompson et al., 2007). Personality does affect the need for job status and job-person fit.

Job status and job-person fit

Examining job status, Battams et al. (2014) found a significant association between job level and depression, where high job demands increased worker's likelihood of depression, and lower-level workers are vulnerable to anxiety and depression (Battams et al., 2014).

Job dissatisfaction is a predictor of offshore oil workers' mental and physical health (Eide et al. 1985) and is associated with job stress and experience of strain (Ulleberg & Rundmo, 1997), leading to absenteeism and high staff turnover. Unaddressed poor mental health affects workplace attendance, productivity and accident rates (James et al., 2018).

Sutherland and Cooper (1996) noted that individuals may be in job positions which do not reflect their skills or abilities. Not being able to use these skills and abilities to their full potential was acknowledged as being potentially damaging to not only mental health but also to offshore safety. Unfortunately, employees will remain in jobs that are a poor fit because there is a distinct lack of opportunities for change. Perceptions of restrictions on career direction can be disheartening and demoralising and may result in resentment towards the organisation, possibly at a cost to the company in the form of poor performance and reduced productivity (Sutherland & Cooper, 1996).

Battams et al. (2014) reported that poor job-person fit is significantly associated with depression. It is often difficult to substitute a poorly fitting role with a better option, particularly during periods of heightened job insecurity due to economic downturn, especially when money is such a motivating factor for FIFO employment (Henry et al., 2013).

Health

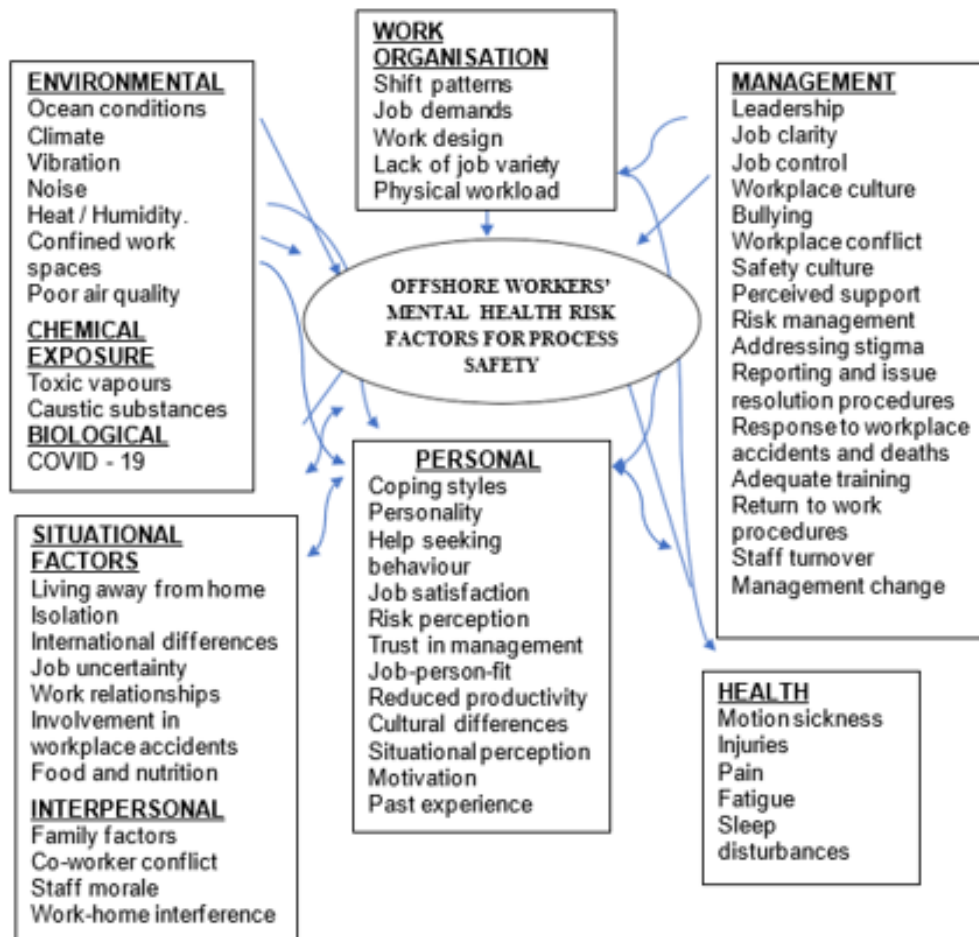
A heavy physical workload places employees at risk of psychological distress (Parker et al., 2018), injury, fatigue (DMIRS, 2018; Mette et al., 2018a) and heat stress (DMIRS, 2020b). Exposure to stressful conditions causes the release of the stress hormones adrenalin, noradrenalin and cortisol, which have been firmly established as contributors towards long term health issues such as heart disease, gastrointestinal illnesses and psychological disorders. An increase in muscle tension through the body's stress response can result in an increased risk of musculoskeletal disorders due to the increased workload on the musculoskeletal system. Aside from responses to a physical injury, disorders of this type can develop due to the impacts of psychosocial factors (COSH, 2019). Chronic illnesses are significantly associated to anxiety and depression, as is increased mortality (Pavičić Žeželj et al., 2019).

As the mental well-being of the workforce is important, based on this review of published literature, a discussion of mental health hazards for offshore oil and gas workers has identified where risk control measures can be implemented. It also identified that there was no comprehensive model that included management, work organisation, environmental factors, chemical exposures, biological exposures, situational factors, health, and personal factors.

Model development and practical implications

Figure 2

Possible mental health hazards for the offshore oil and gas industry workers



The model (Figure 2) is new knowledge and was developed to show the interactions between factors that may cause psychological distress in offshore oil and gas workers. The interrelationships between these stressors have not been collectively considered in previous publications and the new knowledge of dynamic interactions and mediation between variables considered as stressors generated from the discussion can be used by managers, occupational health and safety professionals and decision makers to implement mental health promotion strategies and risk control measures across offshore industries and personnel that operate in isolated or extreme environments.

Considering the factors identified in this model for risk management can be put into practice, this can be actioned through the collection of evidence to identify current areas of concern

related to offshore oil and gas industry employees' mental health and issues raised through an audit tool would form a basis on which to create risk management or action plans. Bringing the model into practice and enacting it into legislation would be an important step towards controlling mental health hazards. A Code of Practice to promote positive mental health can be developed based on the identification of mental health hazards and their risk control measures. This may guide or assist industry in efforts to improve employees' mental wellbeing and is substantial enough to inform the basis of a psychosocial audit tool for offshore oil and gas personnel. Although some factors in the developed model may not be relevant in similar contexts (for example, ocean conditions will not apply in agriculture), the findings are also generalisable across industries which have isolated personnel, long shifts and rosters and that are traditionally male-dominated, such as mining, farming, forestry and seafaring workforces. The results from the study are important to consider in process safety because psychological injury is a common antecedent in workplace accidents. Without examining psychosocial factors that cause poor mental health, organisations have an incomplete picture of the factors affecting process safety.

The review findings can have several important benefits. Claims for psychological injury workers' compensation are extremely expensive (Becher & Dollard, 2016), and mentally healthy workplaces are linked to reduced workers' compensation costs. Furthermore, work environments that focus on mental wellbeing reduce absenteeism due to mental health conditions, lift employee morale, increase worker engagement and productivity (Becher & Dollard, 2016; Dollard et al., 2019). Low levels of employee engagement result in a 12% increase in monthly sick days and an average 8% performance loss (Becher & Dollard, 2016).

Limitations

While the discussion emerged through examining evidence-based literature, it has not yet been applied. Nevertheless, the systematic reviewing and presentation of literature and identification of interactions between factors causing psychological distress remains a valuable contribution to industry partners and regulators in the offshore oil and gas industry. As Henwood & Pidgeon (1995) state, the in-depth methods of qualitative research create the opportunity to provide new theories and models. Furthermore, development was itself partly based on the job demands-control model (Karasek, 1979), the cognitive appraisal model of stress (Lazarus, 1991).

As the systematic review did not filter by creation date, this meant that the results presented research that was up to several decades old and limited by location. For example, the majority of studies examined the offshore workforce on the Norwegian shelf of the North Sea (22 studies) and the U.K. continental shelf (16 studies).

Apart from utilising studies from similar industries which were generalisable to the offshore oil and gas industry, using government and industry reports was necessary due to the gap in the published literature. Although these facilitate understanding of the issues facing offshore oil and gas workers, the sources were not peer-reviewed. Another limitation was the lack of diversity in authorship for studies in the offshore oil and gas environment, which were particularly dependent on research settings in the North Sea and the Norwegian shelf.

Conclusions

Work stress resulting in psychological injury permeates numerous aspects of an individual's work and home life. Decreased engagement in work, interpersonal conflicts and work-family conflict are outcomes that reach across several domains, thereby affecting an employee on multiple levels.

Psychological injury compensation claims pose significant costs for organisations, highlighting a need for insight into the causes and implications of psychosocial stressors. However, it is important that the effects of work stress are addressed not merely as a requirement of law, but also as an obligation towards demonstrating ethical organisational behaviour. Challenges such as COVID-19 add urgency to the need for interventions tailored to offshore workers who may be already experiencing isolation, difficult working conditions, unstable work patterns and mental health issues. In particular, the remoteness of offshore locations, casualisation of the industry's employees, along with the demography of workers and their vulnerability to certain psychological disorders can be said to exacerbate the need for interventions. The model developed attempts to provide a comprehensive summary of risk factors for risk control measures to be identified and implemented to minimise the occurrence of mental health problems in offshore oil and gas workers. The model has the capability to enhance best practices for the offshore oil and gas industry by providing clear explanations and associations between factors that have the potential to affect offshore oil and gas employees. The model developed can be utilised at multiple levels to guide organisations in implementing the best approaches for this industry.

References

- Australian Institute of Health and Safety. (2019). Health and Safety in Design. In *The OHS body of knowledge*. <https://www.ohsbok.org.au/chapter-34-3-health-and-safety-in-design/#1548328004983-899b528e-01e4>
- Australian Maritime Safety Authority (2020). *Fatigue guidelines - managing and reducing the risk of fatigue at sea*. <https://www.amsa.gov.au/vessels-operators/seafarer-safety/fatigue-guidelines-managing-and-reducing-risk-fatigue-sea>
- Baillien, E., De Cuyper, N., & De Witte, H. (2011). Job autonomy and workload as antecedents of workplace bullying: A two-wave test of Karasek's job demand control model for targets and perpetrators. *Journal of Occupational and Organizational Psychology*, *84*, 191–208. doi: 10.1348/096317910x508371
- Baillien, E., Neyens, I., De Witte, H., & De Cuyper, N. (2009). Towards a three-way model of workplace bullying: A qualitative study. *Journal of Community and Applied Social Psychology*, *19*, 1–16. doi:10.1002/casp.977
- Barifcani, A. (2019). *LNG Risk Management and Safety* [Manual]. Curtin University.
- Battams, S., Roche, A. M., Fischer, J. A., Lee, N. K., Cameron, J., & Kostadinov, V. (2014). Workplace risk factors for anxiety and depression in male dominated industries: A systematic review. *Health Psychology and Behavioral Medicine: An Open Access Journal*, *2*(1), 983-1008. doi: 10.1080/21642850.2014.954579
- Becher, H., & Dollard, M. (2016). *Psychosocial safety climate and better productivity in Australian workplaces: Costs, productivity, presenteeism, absenteeism*. <https://apo.org.au/node/70872>
- Behson, S. C. (2002). Coping with family-to-work conflict: The role of informal work accommodations to family. *Journal of Occupational Health Psychology*, *7*(4), 324-341. doi: 10.1037/1076-8998.7.4.324
- Bergh, L., V., Hinna, S., Leka, S., & Zwetsloot, G. I. J. M. (2016). Developing and testing an internal audit tool of the psychosocial work environment in the oil and gas industry. *Safety Science*, *88*, 232-241. <https://doi.org/10.1016/j.ssci.2015.06.003>
- Bergh, L. I. V., Leka, S., & Zwetsloot, G. I. J. M. (2018). Tailoring psychosocial risk assessment in the oil and gas industry by exploring specific and common psychosocial risks. *Safety and Health at Work*, *9*(1), 63–70. doi: 10.1016/j.shaw.2017.05.001
- Berthelsen, M., Pallesen, S., Bjorvatn, B., & Knardahl, S. (2015). Shift schedules, work factors, and mental health among onshore and offshore workers in the Norwegian petroleum industry. *Industrial Health*, *53*, 280–292. doi: 10.2486/indhealth.2014-018
- Bjerkkan, A. M. (2010). Health, environment, safety culture and climate – analysing the relationships to occupational accidents. *Journal of Risk Research*, *13*(4), 445-477. doi: 10.1080/13669870903346386
- Bjerkkan, A. M. (2011). Work and health: A comparison between Norwegian onshore and offshore employees. *Work*, *40*(2), 125-142. doi: 10.3233/WOR-2011-1214
- BOC Gas. (2017). "Safety Data Sheet – Propane", *087 datasheet*, Mar. 2017. December 03, 2020. https://www.google.com/url?sa=t&rcrt=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwj-peuIObuAhWTILcAHRmyAF0QFjAAegQIAxAC&url=https%3A%2F%2Fwww.boc.com.au%2Fshop%2Fen%2Fau%2Fmsds&usq=AOvVaw08qMMHGxIQ8Y0DbGsb_SA3
- BOC Gas. (2018). "Safety Data Sheet – Nitrogen", *069 datasheet*, May 2018. https://www.google.com/url?sa=t&rcrt=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjWvc_AIObuAhWhILcAHd1vDcwQFjAAegQIAxAC&url=https%3A

- %2F%2Fwww.boc.com.au%2Fshop%2Fen%2Fau%2Fmsds&usg=AOvVaw08qMMHGxIQ8Y0DbGsb_SA3
- Bowers, J., Lo, J., Miller, P., Mawren, D., & Jones, B. (2018). Psychological distress in remote mining and construction workers in Australia. *Medical Journal of Australia*, 208(9), 391-397. doi: 10.5694/mja17.00950
- Bureau of Meteorology. (2020). *Climatology of tropical cyclones in Western Australia*. <http://www.bom.gov.au/cyclone/climatology/wa.shtml>
- Center for Chemical Process Safety. (2021). *Human factors handbook for process plant operations*. Wiley-AIChE.
- Chen, W., Wong, T., & Yu, T. (2008). Association of occupational stress and social support with health-related behaviors among Chinese offshore oil workers. *Journal of Occupational Health*, 50(3), 262-269. doi: 10.1539/joh.L7149
- Chen, W., Wong, T., & Yu, T. (2009). Influence of occupational stress on mental health among Chinese offshore oil workers. *Scandinavian Journal of Public Health*, 37(7), 766-773. doi:10.1093/occmed/kqp118
- Chetwynd, E. (2022). Critical analysis of reliability and validity in literature reviews. *Journal of Human Lactation*, 38(3), 392-396. <https://doi.org/10.1177/08903344221100201>
- Chiri, K. & Jansz, J. (2016). Examining the relationship between safety culture and safety climate and the role leading safety indicators play in enhancing safety performance in the oil and gas industry. *World Safety Journal*, 25(2), 4-14. http://worldsafety.org/wp-content/uploads/2016/11/WSJ_VolXXV_No2_2016.pdf
- Collinson, D. L. (1999). Surviving the rigs: Safety and surveillance on North Sea oil installations. *Organization studies*, 20(4), 579-600. doi: 10.1177/0170840699204003
- Commission for Occupational Safety and Health. (2019). *Mentally healthy workplaces for fly-in fly-out (FIFO) workers in the resources and construction sectors – Code of practice*. Department of Mines, Industry Regulation and Safety, Western Australia. <https://www.commerce.wa.gov.au/publications/mentally-healthy-workplaces-fly-fly-out-fifo-workers-resources-and-construction-sectors>
- Cook, D. J., Mulrow, C.D., & Haynes, R. B. (1997). Systematic reviews: Synthesis of best evidence for clinical decisions. *Annals of Internal Medicine*, 126(5), 376-380. doi:10.7326/0003-4819-126-5-199703010-00006
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86(3), 499-512. doi: 10.1037/0021-9010.86.3.499
- Department of Mines, Industry Regulation and Safety. (n.d.). *Human reliability*. <https://www.dmp.wa.gov.au/Safety/Managing-human-reliability-26432.aspx>
- Department of Mines, Industry Regulation and Safety. (2016). *Cyclone – Emergency preparation, planning and preparedness*. <https://www.commerce.wa.gov.au/worksafe/cyclone-emergency-preparation-planning-and-preparedness>
- Department of Mines, Industry Regulation and Safety. (2020a). *Mentally healthy workplaces audit – Technical guide*. <https://www.commerce.wa.gov.au/publications/mentally-healthy-workplaces-audit-tool-and-technical-guide>
- Department of Mines, Industry Regulation and Safety. (2020b). *Working safely in hot conditions*. <https://www.commerce.wa.gov.au/worksafe/working-safely-hot-conditions>
- Ding, N., Berry, H. L., & Bennett, C. M. (2016). The importance of humidity in the relationship between heat and population mental health: Evidence from Australia. *PloS One*, 11(10), 1-15. doi:10.1371/journal.pone.0164190

- DiRenzo, M. S., Greenhaus, J. H., & Weer, C. H. (2011). Job level, demands, and resources as antecedents of work–family conflict. *Journal of Vocational Behaviour, 78*, 305–314. doi: 10.1016/j.jvb.2010.10.002
- Dollard, M. F., & Bakker, A. B. (2010). Psychosocial safety climate as a precursor to conducive work environments, psychological health problems, and employee engagement. *Journal of Occupational and Organizational Psychology, 83*(3), 579–599. doi: 10.1348/096317909X470690
- Dollard, M. F., Dormann, C., & Idris, M. A. (2019). Psychosocial safety climate: A new work stress theory and implications for method. In M. F. Dollard, C. Dormann & M. A. Idris (Eds.), *Psychosocial Safety Climate* (pp. 3–30). Springer, Cham.
- Dollard, M. F., Hall, G., LaMontagne, A. D., Taylor, A. W., Winefield, A. H., Smith, P., & Bakker, A. B. (2009). *Australian Workplace Barometer (AWBQ2009)*, Centre for Applied Psychological Research, University of South Australia, Adelaide.
<https://www.safeworkaustralia.gov.au/doc/australian-workplace-barometer-report-psychosocial-safety-climate-and-worker-health-australia>
- Downie, M., & Gosling, D. (2020). Offshore helicopter travel: Is the U.K. oil and gas industry failing workers? *NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy, 29*(4), 504–518. doi: 10.1177/1048291119887189
- Eide, R., Hellesby, O.H., & Gogstad, A. C. (1985). Associations between experiences of environmental factors and health In O. H. Hellesby (ed.), *Work Environment Stafford Field: Work Environment, Health and Safety on a North Sea Oil Platform*, 317–324
- Elovainio, M., Kivimäki, M., & Vahtera, J. (2002). Organizational justice: Evidence of a new psychosocial predictor of health. *American Journal of Public Health, 92*(1), 105–108. <https://doi.org/10.2105/AJPH.92.1.105>
- Flin, R., Slaven, G., & Stewart, K. (1997). Emergency decision making in the offshore oil and gas industry. *Human Factors, 38*(2), 262–277. doi: 10.1518/001872096779048110
- Fossum, I. N., Bjorvatn, B., Waage, S., & Pallesen, S. (2013). Effects of shift and night work in the offshore petroleum industry: A systematic review. *Industrial Health, 51*, 530–44. doi: 10.2486/indhealth.2013-0054
- Gardner, R. (2003). Overview and characteristics of some occupational exposures and health risks on offshore oil and gas installations. *Annals of Occupational Hygiene, 47*(3), 201–210. doi: 10.1093/annhyg/meg028
- Gardner, B., Kristie-Lee Alfrey, Vandelanotte, C., & Rebar, A. L. (2018). Mental health and well-being concerns of fly-in fly-out workers and their partners in Australia: A qualitative study. *BMJ Open, 8*(3), 1–9. doi: 10.1136/bmjopen-2017-019516
- Gibson Smith, K. L., Paudyal, V., & Stewart, D. J. (2015). The health and wellbeing of offshore workers: A narrative review of the published literature. *Journal of the Institute of Remote Healthcare, 6*, 10–23. <http://hdl.handle.net/10059/1872>
- Gillen, M., Baltz, D., Gassel, M., Kirsch, L., & Vaccaro, D. (2002). Perceived safety climate, job demands, and co-worker support among union and non-union injured construction workers. *Journal of Safety Research 33*, 33–51. doi: 10.1016/s0022-4375(02)00002-6
- Hallinger, P. (2013). A conceptual framework for systematic reviews of research in educational leadership and management. *Journal of Educational Administration, 51*(2), 126–149 doi: 10.1108/09578231311304670
- Hart, S. M. (2019). Comparing labour and management risk perceptions of offshore helicopter safety: Gaps, shifts and worker participation. *Economic and Industrial Democracy, 40*(2) 326–356. doi: 10.1177/0143831X16645200

- Haward, B. M., Lewis, C. H., & Griffin, M. J. (2009). Motions and crew response on an offshore oil production and storage vessel. *Applied Ergonomics*, *40* (5), 904-914. doi: 10.1016/j.apergo.2009.01.001
- Henry, P., Hamilton, K., Watson, S., & McDonald, M. (2013). FIFO/DIDO mental health research report 2013. *Perth Lifeline*.
- Henwood, K., & Pidgeon, N. (1995). Grounded theory and psychological research. *The Psychologist*, *8*(3), 115-118
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, *44*, 513-524. doi: 10.1037/0003-066X.44.3.513
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology: An International Review*, *50*, 337-370. doi: 10.1111/1464-0597.00062
- Høivik, D., Tharaldsen, J. E., Baste, V., & Moen, B. E. (2009). What is most important for safety climate: The company belonging or the local working environment? A study from the Norwegian offshore industry. *Safety Science*, *47*, 1324-1331. doi: 10.1016/j.ssci.2009.04.001
- Hope, S., Øverland, S., Brun, W., & Matthiesen, S. B. (2010). Associations between sleep, risk and safety climate: A study of offshore personnel on the Norwegian continental shelf. *Safety Science*, *48*, 469-77. <https://doi.org/10.1016/j.ssci.2009.12.006>
- Hystad, S. W., Bartonea, P. T., & Eid, J. (2013). Positive organizational behavior and safety in the offshore oil industry: Exploring the determinants of positive safety climate. *The Journal of Positive Psychology*, *9*(1), 42-53. doi: 10.1080/17439760.2013.831467
- Inness, M., Turner, N., Barling, J., & Stride, C.B. (2010). Transformational leadership and employee safety performance: A within-person, between-jobs design. *Journal of Occupational Health Psychology*, *15*(3), 279-290. doi:10.1037/a0019380
- Jain, A., Leka, S., & Zwetsloot, G. (2011). Corporate social responsibility and psychosocial risk management in Europe. *Journal of Business Ethics*, *101*(4), 619-633. <https://doi.org/10.1007/s10551-011-0742-z>
- James, C., Tynan, R., Roach, D., Leigh, L., Oldmeadow, C., Rahman, M., & Kelly, B. (2018). Correlates of psychological distress among workers in the mining industry in remote Australia: Evidence from a multi-site cross-sectional survey. *PLoS ONE*, *13*(12): e0209377. doi:10.1371/journal.pone.0209377
- Jansz, J., & Mills, S. (2020). Hours of work for tugboat operators. *World Safety Journal*, *29*(4), 3-15. <https://worldsafety.org/wp-content/uploads/WSJ-December-2020-1.pdf>
- Jepsen, J. R., Zhao, Z., & Van Leeuwen, W. M. A. (2015). Seafarer fatigue: A review of risk factors, consequences for seafarers' health and safety and options for mitigation. *International Maritime health*, *66*(2), 106-117. doi: 10.5603/TMH.2015.0024
- Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, *24*(2), 285-308. doi: 10.2307/2392498
- Karasek, R., & Theorell, T. (1990). *Healthy work: Stress, productivity, and the reconstruction of working life*. Basic Books.
- Landon, L. B., Douglas, G. L., Downs, M. E., Greene, M. R., Whitmire, A. M., Zwart, S. R., & Roma, P. G. (2019). The behavioral biology of teams: Multidisciplinary contributions to social dynamics in isolated, confined, and extreme environments. *Frontiers in Psychology*, *10*, 2571. doi: 10.3389/fpsyg.2019.02571
- Law, R., Dollard, M. F., Tuckey, M. R., & Dormann, C. (2011). Psychosocial safety climate as a lead indicator of workplace bullying and harassment, job resources, psychological health and employee engagement. *Accident Analysis & Prevention*, *43*, 1782-1793. doi: 10.1016/j.aap.2011.04.010

- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer publishing company.
- Lazarus, R. S. (1991). Psychological stress in the workplace. *Journal of Social Behavior and Personality*, 6, 1–13.
- Leka, S., Griffiths, A., & Cox, T. (2003). *Work Organisation and Stress: Systematic problem approaches for employers, managers and trade union representatives*. World Health Organisation, Geneva.
<https://apps.who.int/iris/bitstream/handle/10665/42625/9241590475.pdf>
- Leka, S., Van Wassenhove, W., & Jain, A. (2015). Is psychosocial risk prevention possible? Deconstructing common presumptions. *Safety Science*, 71(Part A), 61–67.
<https://doi.org/10.1016/j.ssci.2014.03.014>
- Ljoså, C., Tyssen, R., & Lau, B. (2011). Mental distress among shift workers in Norwegian offshore petroleum industry — relative influence of individual and psychosocial work factors. *Scandinavian Journal of Work, Environment & Health*, 37(6), 551–555.
<http://www.jstor.org/stable/23064891>
- McKinlay, N. G. (2018). Long working hours, social psychological stressors, and poor health: The effect of flexible employment contracts on workers' physical and psychological health. *American Journal of Medical Research*, 5(2), 64–69.
<http://dx.doi.org/10.22381/AJMR5220189>
- McNabb, D. E. (2008). *Research methods in public administration and non-profit management: Qualitative and quantitative approaches* (2nd ed.). ME Sharpe.
- Mearns, K.J., & Flin, R., Gordon, R., & Fleming, M. (2001). Human and organizational factors in offshore safety. *Work & Stress*, 15(2), 144–160. doi: 10.1080/026783701102678370110066616
- Merkus, S. L., Huysmans, M. A., Holtea, K. A., van Mechelen, W., & van der Beek, A. J. (2017). An active transition from offshore work to family life: Activities that may impact recovery. *Work*, 58, 371–381. doi: 10.3233/WOR-172631
- Mette, J., Robelski, S., Kirchhöfer, M., Harth, V., & Mache, S. (2019). Living the 14/14 schedule: Qualitative analysis of the challenges and coping strategies among families of offshore wind workers. *International Journal of Environmental Research and Public Health*, 16(2), 1–19. doi: 10.3390/ijerph16020241
- Mette, J., Velasco Garrido, M., Harth, V., Preisser, A. M., & Mache, S. (2017). “It’s still a great adventure” – exploring offshore employees’ working conditions in a qualitative study. *Journal of Occupational Medicine and Toxicology*, 12(35), 12–35. doi: 10.1186/s12995-017-0179-0
- Mette, J., Velasco Garrido, M., Harth, V., Preisser, A. M., & Mache, S. (2018a). Healthy offshore workforce? A qualitative study on offshore wind employees’ occupational strain, health, and coping. *BMC Public Health*, 18(1), 172. doi: 10.1186/s12889-018-5079-4
- Mette, J., Velasco Garrido, M., Preisser, A. M., Harth, V., & Mache, S. (2018b). Linking quantitative demands to offshore wind workers' stress: Do personal and job resources matter? A structural equation modelling approach. *BMC Public Health*, 18(1), 934. doi: 10.1186/s12889-018-5808-8
- Miller, P., Brook L., Stomski, N., Ditchburn, G., & Morrison, P. (2020). Bullying in Fly-In-Fly-Out employees in the Australian resources sector: A cross-sectional study. *PLoS ONE* 15(3): e0229970. <https://doi.org/10.1371/journal.pone.0229970>
- Moher D., Liberati, A., Tetzlaff, J., & Altman, D. G., The PRISMA Group (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA Statement. *PLoS Med* 6(6), 332–336. doi:10.1371/journal.pmed1000097. www.prisma-statement.org.

- Moreland, R. L., & Levine, J. M. (1982). Socialization in small groups: Temporal changes in individual group relations. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 15, pp. 137–192). Academic Press.
- Mulrow, C. D. (1994). Rationale for systematic reviews. *BMJ*, *309*(6954), 597-599. doi:10.1136/bmj.309.6954.597
- National Offshore Petroleum Safety and Environmental Management Authority. (2020a). *The safety case in context: An overview of the safety case regime*. <https://www.nopsema.gov.au/document-hub/guidance-notes>
- National Offshore Petroleum Safety and Environmental Management Authority. (2020b). *COVID-19 roster changes*. <https://www.nopsema.gov.au/resources/regulatory-alerts/covid-19-roster-changes/>
- National Offshore Petroleum Safety and Environmental Management Authority. (2021). *Human Factors*. <https://www.nopsema.gov.au/offshore-industry/safety/human-factors>
- National Offshore Petroleum Safety and Environmental Management Authority (2022). *Hazard identification*. <https://www.nopsema.gov.au/document-hub/guidance-notes>
- Neis, B., Neil, K., & Lippel, K. (2020, April). *Mobility in a pandemic: COVID-19 and the mobile labour workforce* (Working Paper). <https://www.onthemovepartnership.ca/wp-content/uploads/2020/04/COVID-and-Mobile-Labour-Force-Working-Paper.pdf>
- Nielsen, M.B. (2013). Bullying in work groups: The impact of leadership. *Scandinavian Journal of Psychology*, *54*, 127–136. doi: 10.1111/sjop.12011
- Nielsen, M. B., Glasø, L., Stig, B. M., Eid, J., & Einarsen, S. (2013a). Bullying and risk-perception as health hazards on oil rigs. *Journal of Managerial Psychology*, *28*(4), 367-383. doi: 10.1108/JMP-12-2012-0395
- Nielsen, M. B., Mearns, K., Matthiesen, S. B. & Eid, J. (2011). Using the Job Demands–Resources model to investigate risk perception, safety climate and job satisfaction in safety critical organizations. *Scandinavian Journal of Psychology* *52*, 465–475. doi: 10.1111/j.1467-9450.2011.00885.x
- Nielsen, M. B., Tvedt, S. D., & Matthiesen, S. B. (2013b). Prevalence and occupational predictors of psychological distress in the offshore petroleum industry: A prospective study. *International Archives of Occupational and Environmental Health*, *86*(8), 875-885. doi: 10.1007/s00420-012-0825-x
- Niven, K. & McLeod, R. (2009). Offshore industry: Management of health hazards in the upstream petroleum industry. *Occupational Medicine*, *59*, 304–309. doi:10.1093/occmed/kqp076
- Petroleum Safety Authority Norway. *Summary report 2021, the Norwegian continental shelf, trends in risk level in the petroleum activity*. https://www.havtil.no/globalassets/fagstoff/rnnp/sammendragsrapp_2021_engelsk.pdf
- Parkes, K. R. (1992). Mental health in the oil industry: A comparative study of onshore and offshore employees. *Psychological Medicine*, *22*, 997-1009. doi: 10.1007/s00420-016-1174-y
- Parkes, K. R. (1998). Psychological aspect of stress, health and safety on North Sea installations. *Scandinavian Journal of Work, Environment & Health*, *24*(5), 321-333. doi: 10.5271/sjweh.352
- Parkes, K. R. (2010). *Offshore working time in relation to performance, health and safety: A review of current practice and evidence*. University of Oxford for the Health and Safety Executive. <https://www.hse.gov.uk/research/rpdf/r772.pdf>
- Parkes, K. R. (2012). Shift schedules on North Sea oil/gas installations: A systematic review of their impact on performance, safety and health. *Safety Science*, *50*, 1636–1651. doi: 10.1016/j.ssci.2012.01.010

- Parkes, K. R. (2015). Work environment, overtime and sleep among offshore personnel. *Accident Analysis and Prevention*, 99, 383-388. doi: 10.1016/j.aap.2015.11.022
- Parkes, K. R. (2017). Work environment, overtime and sleep among offshore personnel. *Accident and Analysis Prevention*. 383-388. doi: 10.1016/j.aap.2015.11.022
- Parkes, K. R., Carnell, S. C., & Farmer, E. L. (2005) 'Living two lives'. *Community, Work & Family*, 8(4), 413-437. doi: 10.1080/13668800500251755
- Parker, S. K., Fruhen, L., Burton, C., McQuade, S., Loveny, J., Griffin, M., Page, A., Chikritzhs, T., Crock, S., Jorritsma, K., & Esmond, J. (2018). *Impact of FIFO work arrangements on the mental health and wellbeing of FIFO workers*. Centre for Transformative Work Design. <https://research-repository.uwa.edu.au/en/publications/impact-of-fifo-work-arrangements-on-the-mental-health-and-wellbei>
- Parker, S. K. Morgeson, F. P., & Johns, G. C. (2017). One hundred years of work design research: Looking back and looking forward. *Journal of Applied Psychology*, 102(3), 403-420. doi: 10.1037/apl0000106
- Pavičić Žeželj, S., Cvijanović Pelozo, O., Mika, F., Stamenković, S., Mahmutović Vranić, S., & Šabanagić Hajrić, S. (2019). Anxiety and depression symptoms among gas and oil industry workers. *Occupational Medicine*, 69(1), 22–27. doi: 10.1093/occmed/kqy170
- Petrochem Carless. (2008), "Safety data sheet - Mono Ethylene Glycol", Jan. 2008. <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiNgJOYlubuAhXq7XMBHdCpCrAQFjAAegQIARAC&url=https%3A%2F%2Fwww.smi-thandallan.com%2Fdocuments%2FMEG%2520MSDS.pdf&usq=AOvVaw2aqb-tfZLC6dKOVgWUG3Ye>
- Qian, F., Gribkovskaia, I., Halskau Sr., Ø., & Stentoft Arlbjorn, J. (2011). Helicopter routing in the Norwegian oil industry. *International Journal of Physical Distribution & Logistics Management*, 41(4), 401-415. doi: 10.1108/09600031111131959
- Riethmeister, V., Brouwer, S., van der Klink, J., & Bültmann, U. (2016). Work, eat and sleep: Towards a healthy ageing at work program offshore. *BMC Public Health*, 16, 134. doi: 10.1186/s12889-016-2807-5
- Rotondo, D. M., Carlson, D. S., & Kincaid, J. F. (2003). Coping with multiple dimensions of work-family conflict. *Personnel Review*, 32, 275–296. doi: 10.1108/00483480310467606
- Rundmo, T. (1992a). Risk perception and safety on offshore petroleum platforms - Part I: Perception of risk. *Safety Science*, 15, 39-92. doi: 10.1016/0925-7535(92)90038-2
- Rundmo, T. (1992b). Risk perception and safety on offshore petroleum platforms - Part II: Perceived risk, job stress and accidents. *Safety Science*, 15, 53-68. doi: 10.1016/0925-7535(92)90038-2
- Rundmo, T. (1994). Associations between safety and contingency measures and occupational accidents on offshore petroleum platforms. *Scandinavian Journal of Work, Environment and Health*, 20, 128-131. doi: 10.5271/sjweh.1421
- Rundmo, T. (1995). Perceived risk, safety status, and job stress among injured and noninjured employees on offshore petroleum installations. *Journal of Safety Research*, 26(2), 87-97. doi: 10.1016/0022-4375(95)00008-E
- Rundmo, T. (1996). Associations between risk perceptions and safety. *Safety Science*, 24, 197-209. doi: [https://doi.org/10.1016/S0925-7535\(97\)00038-6](https://doi.org/10.1016/S0925-7535(97)00038-6)
- Sadłowska-Wrzesińska, J. (2017). Reducing the psychosocial risk at work as the task of socially responsible companies. *International Journal of Occupational and Environmental Safety*, 1(1), 29-38. doi: 10.24840/2184-0954_001.001_0003
- Safe Work Australia. (2019). *Work-related psychological health and safety: A systematic approach to meeting your duties*.

- https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjMuq_Jhd_vAhWkW3wKHahhC_gQFjAAegQLAxAD&url=https%3A%2F%2Fwww.safeworkaustralia.gov.au%2Fdoc%2Fwork-related-psychological-health-and-safety-systematic-approach-meeting-your-duties&usq=AOvVaw0xtsrPPpIANE42f1NmbsZS
- Salanova, M., Schaufeli, W. B., Xanthopoulou, D., & Bakker, A. B. (2010). The gain spiral of resources and work engagement: Sustaining a positive worklife. In A. B. Bakker & M. P. Leiter (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 118–131). Psychology Press.
- Schmidt, M. (2021). *Process Safety and Mental Health*. Bluefield process safety. <https://www.bluefieldsafety.com/2021/08/process-safety-and-mental-health/>
- Shaw-Mills, S. T. (2015). *Towards the Prevention of long-duration workers compensation claims- Pre-claim intervention and strategy* [Doctoral dissertation, Curtin University]. http://link.library.curtin.edu.au/p?cur_dspace_dc20.500.11937/172
- Sheehan, M. (1999). Workplace bullying: responding with some emotional intelligence. *International Journal of Manpower*, 20(1/2), 57–69. <https://doi.org/10.1108/01437729910268641>
- Shell Australia Pty Ltd, "Safety Data Sheet – LNG", 800010026019 datasheet, Nov. 2020 [Revised Nov. 2020]. <https://www.shell.com/business-customers/chemicals/safe-product-handling-and-transportation/chemicals-safety-data-sheets.html>
- Sneddon, A. Mearns, K., & Flin, R. (2013). Stress, fatigue, situation awareness and safety in offshore drilling crews. *Safety Science*, 56, 80-88. doi: 10.1016/j.ssci.2012.05.027
- Sutherland, V. J., & Cooper, C. L. (1986). *Man and accidents offshore: The costs of stress among workers on oil and gas rigs*. London, Lloyd's List/Dietsmann.
- Sutherland, V. J., & Cooper, C. L. (1989). Occupational stress in the offshore oil and gas industry. *International Reviews of Ergonomics*, 2, 183-215.
- Sutherland, V. J., & Cooper, C. L. (1991). Personality, stress and accident involvement in the offshore oil and gas industry. *Personality and Individual Differences*, 12, 195–204. doi:10.1016/0191-8869(91)90103-I
- Sutherland, V.J., & Cooper, C. L. (1996). Stress in the offshore oil and gas exploration and production industries: An organizational approach to stress control. *Stress Medicine*, 12, 27-34. doi:10.1002/(SICI)1099-1700(199601)12:1<27::AID-SMI675>3.0.CO;2-0
- Sutherland, K. M., & Flin, R.H. (1989) Stress at sea: A review of working conditions in the offshore oil and fishing industries. *Work & Stress*, 3(3), 269-285. doi: 10.1080/02678378908251563
- Swaen, G., Van Amelsvoort, L., Bültmann, U., Slangen, J., & Kant, I. (2004). Psychosocial work characteristics as risk factors for being injured in an occupational accident. *Journal of Occupational and Environmental Medicine*, 46(6), 521-527. doi: 10.1097/01.jom.0000128150.94272.12
- Tharaldsen, J. E., Mearns, K. J., & Knudsen, K. (2010). Perspectives on safety: The impact of group membership, work factors and trust on safety performance in UK and Norwegian drilling company employees. *Safety Science*, 48(8), 1062-1072. doi:10.1016/j.ssci.2009.06.003
- Tharaldsen, J. E., Olsen, E., & Rundmo, T. (2008). A longitudinal study of safety climate on the Norwegian continental shelf. *Safety Science*, 46(3), 427-439. doi:10.1016/j.ssci.2007.05.006

- The Health and Safety Executive. (n.d.). *Human factors: Managing human failures*.
<https://www.hse.gov.uk/humanfactors/topics/humanfail.htm>
- Thermo Fisher Scientific. (2014). “*Safety Data Sheet – Mercury*”, Aug. 2014 [Revised Jan. 2018].
<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjGg4GhmebuAhVO7HMBHdd5DCYQFjAAegQIAXAC&url=https%3A%2F%2Fwww.fishersci.com%2Fstore%2Fmsds%3FpartNumber%3DM1405LB%26productDescription%3DMERCURY%2BMETAL%2BPURIFIED%2B5LB%26vendorId%3DVN00033897%26countryCode%3DUS%26language%3Den&usq=AOvVaw3x54BHMmHoNqgpTPQECuCW>
- Thompson, C. A., Poelmans, S. A. Y., Allen, T. D., & Andreassi, J. K. (2007). On the importance of coping: A model and new directions for research on work and family. In P. L. Perrewé & D. C. Ganster (Eds.), *Research in occupational stress and well-being: Vol. 6. Exploring the work and non-work interface* (pp. 73–113). Elsevier Science/JAI Press.
- Torkington, A. M., Larkins, S., & Gupta, T. S. (2011). The psychosocial impacts of fly-in fly-out and drive-in drive-out mining on mining employees: A qualitative study. *Australian Journal of Rural Health, 19*, 135–141. doi: 10.1111/j.1440-1584.2011.01205.x
- Torquati, L., Mielke, G. I., Brown, W. J., Burton, N. W., & Kolbe-Alexander, T. (2019). Shift work and poor mental health: A meta-analysis of longitudinal studies. *American Journal of Public Health, 109*(11), 13-20. doi: 10.2105/AJPH.2019.305278
- Ulleberg, P., & Rundmo, T. (1997). Job stress, social support, job satisfaction and absenteeism among offshore oil personnel. *Work & Stress, 11*(3), 215-228. doi:10.1080/02678379708256836
- Vinnem, J. E., Aven, T., Husebø, T., Seljelid, J., & Tveit, O. J. (2006). Major hazard risk indicators for monitoring of trends in the Norwegian offshore petroleum sector. *Reliability Engineering & System Safety, 91*, 778-91. doi: 10.1016/j.res.2005.07.004
- WorkSafe ACT. (2023). *Mental health: Workplace mental health*.
<https://www.worksafe.act.gov.au/health-and-safety-portal/safety-topics/mental-health>
- Wright, C. (1986). Routine deaths: fatal accidents in the oil industry. *Sociological Review, 34*(2), 265-288. <https://journals.sagepub.com/doi/10.1111/j.1467-954X.1986.tb02702.x>
- Wu, C. (2016). Personality change via work: A job demand–control model of Big-five personality changes. *Journal of Vocational Behavior 92*, 157–166. doi: 10.1016/j.jvb.2015.12.001

Author Contributions

Conceptualization, E.D.; methodology, E.D. and J.J.; software, E.D.; validation, E.D. and J.J.; formal analysis, E.D.; investigation, E.D.; resources, C.L.; data curation, E.D.; writing—original draft preparation, E.D.; writing—review and editing, J.J.; visualization, E.D.; supervision, J.J., A.B., S.S.-M., M.H. and C.L.; project administration, C.L.; funding acquisition, C.L. All authors have read and agreed to the published version of the manuscript.

The authors declare that there is no financial or personal interest or belief that could affect our objectivity.



World Safety Journal

A peer-reviewed journal,
published by the World Safety Organization

Journal Homepage:
<https://worldsafety.org/wso-world-safety-journal/>



Psychosocial Hazards Identified at Western Australian Offshore Oil and Gas Facilities and Potential Costs

Emma D'Antoine^{1,*}, Janis Jansz^{1,2}, Ahmed Barifcani¹, Sherrilyn Shaw-Mills², Mark Harris³, Christopher Lagat¹

¹ *WA School of Mines: Minerals, Energy and Chemical Engineering, Curtin University, Bentley, Western Australia.*

² *Healthforce Group: High Wycombe, Western Australia.*

³ *School of Economics, Finance and Property, Curtin University, Bentley, Western Australia.*

KEYWORDS

Offshore oil and gas
Psychosocial hazards
Economic loss
Casual work
Qualitative analysis

ABSTRACT

Offshore workers face similar stressful working conditions globally. Whether employed on oil, gas or wind facilities, as work offshore is geographically isolated, physically demanding, risky and requires long absences away from home. This study aimed to identify specific mental health stressors in the oil and gas industry off the northwest coast of Australia. The study employed a focus group approach, followed by interviews with offshore oil and gas workers. Interview data was analysed through NVivo and analysis revealed additional psychosocial stressors causing poor mental health for offshore oil and gas workers. One theme which emerged from the analysis was the significant economic costs of poor mental health in the workplace for both employers and employees. These research findings can provide a basis for further research into the economic costs of psychosocial hazards on offshore facilities and recommendations are made for industry, industry regulators and government agencies.

1. INTRODUCTION

Psychological injuries are a serious and worsening issue in Australian workplaces and can cause adverse mental health problems, with an increase from 6.5% for 2011/12 to 9.2% for 2021/22 (Safe Work Australia, 2023). Psychological injuries also result in greater compensation costs and more time away from work than physical injuries. Mental health conditions resulted in 34.2 working weeks of median time lost in 2021-2022. In comparison, physical injuries and conditions resulted in 8.0 weeks of median time lost (Safe Work Australia, 2023).

When considering that the medium work time of 18.8 weeks were lost to mental health conditions in 2015-16 and by 2021 this was 34.2 (Safe Work Australia, 2023), it is evident that poor mental health in the workplace is a growing issue. Likewise, when considering median compensation costs, costs for mental stress claims amount to more than three times the cost for all serious compensation claims. The

* *Corresponding author:* emma.dantoine@postgrad.curtin.edu.au

compensation cost per claim for mental stress was \$58,615 in 2021/2022, which is almost four times the amount of for the median compensation amount for all claims which was estimated at \$15,743.

Workers' compensation costs in 2022-2023 in the Western Australian mining industry were \$187.1 million (inclusive of oil and gas extraction claims, King et al., 2023). Offshore oil and gas workers are at a higher than usual risk of poor mental health. Long, revolving and uneven shift patterns have been linked to depression and anxiety (Berthelsen et al., 2015; Pavičić Žeželj et al., 2019; Torquati et al., 2019). Poor sleep quality has been linked to anxiety (Parkes, 2015) and mood disorders as well as depression (Berthelsen et al., 2015). Stress and anxiety are associated with the isolation of Fly-in-fly-out (FIFO) work (Henry et al., 2013; Parker et al., 2018; Parkes, 2012).

Failing to address mental health issues results in absenteeism, presenteeism, loss of focus, loss of production and an increased risk of making mistakes resulting in higher accident rates (James et al., 2018). In contrast, productivity and performance can be affected in a significant and positive way by promoting good mental health (Department of Mines, Industry Regulation and Safety, 2020; Wright and Cropanzano, 2000). Lack of focus and diminished attention and awareness on high-risk installations such as offshore oil and gas facilities present safety risks that extend to all employees, as an accident is likely to impact on co-workers due its seriousness.

A literature review, focus group and interviews were conducted for this study. The first version of a model was developed based on a scoping review of existing published literature addressing psychosocial stressors for offshore oil and gas workers worldwide. This model was then adapted to reflect the findings of the focus group and interviews with research participants who worked in the Western Australian offshore oil and gas industry as information specific to this group of people was not found in the published literature reviewed.

2. METHODOLOGY

This study was qualitative and exploratory in nature, utilising a literature review, a focus group of eight members and one-on-one interviews through Microsoft Teams with 29 offshore oil and gas workers. Analysis was conducted using NVivo software, which allowed themes and patterns to be identified from transcripts recorded through Microsoft Teams. The study was granted ethical approval by the Human Research Ethics Committee (HREC) (Ethics Approval number HRE2021-0512).

2.1 Participants

There were 37 participants: 8 members of a focus group and 29 interviewees, who were selected based employment position and type. Of these interviewees, 5 were part of a pilot study. Thirty-three participants were male, 4 were female and ages ranged from 25 years of age to 60+ years. All interviewees worked at least 12 hours each day, with no rest days while offshore.

2.2 Procedure

The literature review process is described in Figure 1. The focus group questions were formed from a review of the published literature, which identified numerous mental health hazards offshore. Open-ended questions were asked during interviews and the interviews were recorded and transcribed.

The focus group questions were concentrated on identifying factors that may affect the mental health of offshore oil and gas workers, impacts of poor mental health, opportunities for improvements and identifying possible mitigation strategies. Results and analysis of the focus group answers were used to develop the interview questionnaire.

The interview questions asked participants for their demographic information. This was followed by exploratory questions asking for information about hours of work, management, mental health hazards, management of return to work after a work-related injury or ill health, workplace culture, if there was stigma when reporting mental health issues, economic effects of poor mental health, positive mental health strategies used in the offshore oil and gas industry, education and support.

Interview participants were also asked if there were any other factors that caused poor mental health and ways to improve mental health for offshore oil and gas workers. A successful Pilot Study was conducted with 5 participants followed by a further 24.

2.3. Analysis

After transcription of focus group and interview documents, notes were made of the main themes for each question. Information was then entered into the NVivo software program. Participants in the focus group and interviews remained anonymous and were assigned numbers 1-37. Codes and sub-codes emerged through classifying and arranging of data in NVivo. Mind-mapping for each transcript was used to identify further themes and patterns (The University of Adelaide, 2020), providing a visual method of establishing results within theory (Wheeldon, 2018).

Validity and reliability were demonstrated through the uniformity of results when repeatedly searching for similar relationships in the text. NVivo also minimises the possibility of human and automatic errors (Dhuria & Chetty, 2017). To ensure that respondents were given the opportunity to relate their own experiences accurately and authentically (Creswell, 2009), questions were designed to be open-ended.

The number of participants was not predetermined and, in line with the aim of qualitative research of discovering experience and meaning, interviews were conducted until data saturation was achieved.

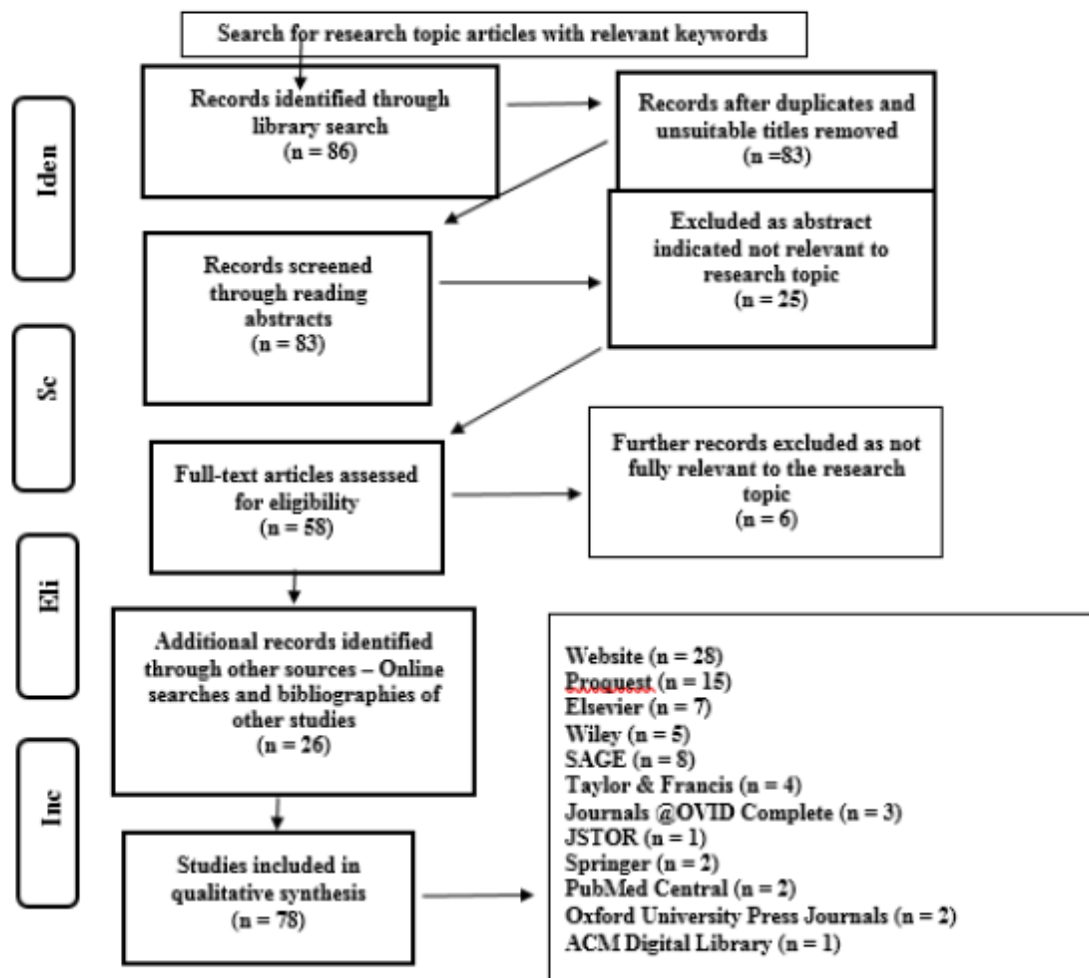
3. RESULTS AND DISCUSSION

3.1 Identified causes of poor mental health

A scoping review of published literature revealed that working on offshore platforms, whether they be wind, oil, or gas installations, exposes employees to multiple types of stressors which have a negative effect on the psychosocial health of employees.

The literature review used the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) statement (Moher et al., 2009) for reporting items (see Figure 1).

Figure 1. Flow chart depicting the article search and selection procedure for all articles



3.2 Literature review findings

Working long hours or shifts, as well as revolving shift patterns were found by several authors to be linked to anxiety (Berthelsen et al., 2015; Pavičić Žeželj et al., 2019; Torquati et al., 2019) and depression (Berthelsen et al., 2015; Pavičić Žeželj et al., 2019). Night shifts, likewise, place employees at risk of irritability (Roberts & del Vecchio, 2000) and elevated suicidal intent; Parker et al. (2018). Fatigue at the end of a work cycle offshore can be worsened by pressure to complete tasks and projects (Nielsen, 2013), affecting situational awareness which is linked to higher accident rates due to an increase in unsafe behaviours (Miller et al., 2019). Workplace bullying was found to result in increased depression and an elevated suicide risk (Nielsen et al., 2013), along with fatigue and poor coordination (Bowers et al. 2018). Poor sleep or sleep quality can lead to anxiety (Parkes, 2015), depression, mood disorders and neuroticism (Berthelsen et al., 2015).

<https://doi.org/10.5281/zenodo.12735353>

The isolation of offshore work was found to be significantly linked to stress (Parkes, 2012), corresponding with other studies that revealed negative links between the isolated working environment of onshore mining with anxiety (Henry et al., 2013; Parker et al., 2018), psychological distress (Landon, 2019), poor team functioning and poor interpersonal relationships (Warren, 2015). Where there is low job decision or latitude, employees are at risk of anxiety, stress and depression (Berthelsen et al., 2015).

3.3 Focus group research findings

The focus group participants revealed the main concerns to be the length of offshore rosters, which had at the time been compressed and lengthened due to COVID-19 regulations, casualisation of the offshore workforce and promoting mental health in the workplace in the way of best practice, with clear and constant messaging required from management. A part of this clear messaging included reducing the stigma surrounding mental conditions, developing self-awareness and a good mindset, and providing a multi-faceted approach to psychological wellness, including presentations and literature on mental health. A fear of injury (and reinjury), with a focus on lowering the likelihood of making mistakes were concerns from one participant (P5), who was concerned about loss of focus and the potential of endangering other colleagues:

'Poor mental health can result in mistakes and endanger other personnel.'

A fear of job loss (P4) and loss of work identity (P8) were other themes which emerged from the focus group. In this case, loss of work and work identity can be directly linked to casualisation of work and injury: work identity has enjoyed a long and rich spotlight in debate and theory (Parkes, 2011; Weber, 2015).

The possibility of psychometric testing was raised by P1. This acts as a form of employee screening, because if employees are seeking psychological help due to the inherent nature of the work environment, they may not be suited to this type of work (P8). Other themes which emerged from the focus group analysis were the importance of exercise, maintaining good employer-employee relationships and the inadequacy of facilities such as accommodation, internet and food provided by the organisation.

3.4 Interview research findings

Space to work and live on offshore facilities is, clearly, limited. Participants alluded to the confinement of all areas of their life offshore. This included workspaces, accommodation, and shared areas such as the mess room and the gym. Furthermore, the mess room was often full, with workers having to wait for seating to become available (P2, P18). This lack of space worsens other stressors that are present offshore (Evans & Stecker, 2004), significantly impacting work engagement and persistence with complex work tasks (Underhill & Quinlan, 2011). Other findings linked crowding in remote or isolated environments to aggression and a reduced tolerance of current team members by new team members, as well as reduced perceived control and increased interpersonal tension (Evans & Stecker, 2004). An absence of space means that employees also endure a lack of privacy when making personal phone calls (P29).

Several participants referred to their unwillingness to speak up when they felt something was wrong due to the likelihood of negative consequences (P13, P21, P37). For casual workers offshore, a fear of speaking up is pervasive (P13, P33). P10 and P13 explained that casual workers were reluctant to speak

<https://doi.org/10.5281/zenodo.12735353>

up if they were showing symptoms consistent with COVID-19 and were hesitant to report mental health conditions such as depression (P24). This is not a new phenomenon or one that is exclusive to offshore work. Studies have revealed that Occupational Health and Safety Representatives hold fears for their employment if they raise an issue (Australian Council of Trade Unions, 2018; McCabe, 2007). In 2018, attention was drawn to the removal of Health and Safety Representatives from facilities and rosters due to their speaking up on workplace issues (Collins & Collins, 2002). Furthermore, raising concerns about safety or organisational practices carries the risk of being blacklisted (Collins & Collins, 2002; P6; P13).

Poor morale, productivity decline and increased staff turnover are widely known effects of micromanaging employees (Irani-Williams et al., 2021; Tavanti, 2011). On the whole, micromanagement is a negative work practice, revealing a lack of trust or confidence in employees (Sibbel, 2010), consequently resulting in a loss of trust in management (Tavanti, 2011). In this study, employees' diets were micromanaged (P20) and it was felt that supervisors exercised excessive regulation over their workers (P6, P12).

Another theme which emerged from the interview data was the difficulty of being away from home and family. Missing out on special occasions was a common theme in the analysis (P5, P15, P13, P12, P21), as well as in published literature (Landon, 2019). In addition, there was frustration over not being able to be present when family emergencies occurred (P21, P25). Going back offshore to work when there are unresolved family issues causes employees stress (P1, P8, P13). Likewise, reintegration back into family life can be difficult (P8), leading to detachment from home life and feeling like a stranger at home (Parkes et al., 2005).

Strained partner relationships caused mental distress in 68% of relationships in a study of onshore FIFO workers (Parkes et al., 2005). The feeling of 'living two lives' was found in both the literature (Fair Work Act, 2009) and this study (P28). The isolation of FIFO work is known to exacerbate the impacts of family issues. Further to this, the poor internet facilities provided (P2, P3, P4, P6, P7, P10, P11, P17, P18) means that workers cannot communicate adequately with partners and children (P15).

Casual workers in this study had been subjected to several underhand practices by their organisation. The practice of hiring-firing-rehiring appeared to be grudgingly tolerated by participants (P12, P20), perhaps because companies are refusing to grant their employees permanency and the employees have no alternative but to accept this situation. Preconditions put in place to protect casual workers (Carmona-Barrientos, 2020; Fair Work Ombudsman, 2023; Stanford, 2021) seem to be easily navigated by organisations in the form of employment dismissal at the end of each cycle or swing. Even if the preconditions of casual conversion are met, employers still retain the right to refusal on reasonable grounds to provide permanent employment (Carmona-Barrientos, 2020). Casual or temporary employment arrangements are significantly linked to increased levels of job-related stress (Bailey-Kruger, 2012).

Those who experienced interpersonal conflict and bullying had suffered from stress (P11, P20), echoing previous findings from offshore facilities (Bowers et al., 2018) and often this came from management level down to employers, a clear example of unequal power relations (P8, P13, P22). This reflects other findings from research into employees' experiences of FIFO work (Parker et al., 2018). For P20 and P29, some gendered harassment was experienced from male colleagues, reflecting findings in previous research (Theobald, 2002) that revealed women's experiences to be negatively affected by the male-dominated environment of FIFO work, where all participants felt some degree of

restriction against their career progression. In this study, P20's experience was described as 'one of those female-male things' and P29's description implied a clear case of harassment for a relationship.

The impacts on female workers result in an increase in stress symptoms (Australian Human Rights Commission, 2018) in an already stressful working environment. Research into sexual harassment in the mining industry reported that 74% of female workers had been victims of sexual harassment in the five years prior to the study (Murphy et al., 2021). Likewise, sexual harassment was found to be pervasive in the offshore oil and gas industry (Blanchflower and Bryson 2020). Indeed, a potential female participant would not go ahead with the interview, despite the desire to share her experiences, for fear of being identified.

Employees offshore find their unions are a source of support and are important for their wellbeing (Robinson & Smallman, 2013, P6, P18). Membership of a union is linked to life satisfaction and reduced rates of stress and worry. Employees have also shown lower levels of loneliness, sadness and depression when they belong to a union (Robinson & Smallman, 2013). Trust in others and in legal and political institutions, groups and figures is also more positive (Robinson & Smallman, 2013). Managing health and safety in the workplace with the assistance of a union has been linked to reduced injuries rates, whereas quite the opposite occurs where union representation is absent (Xiang et al., 2014).

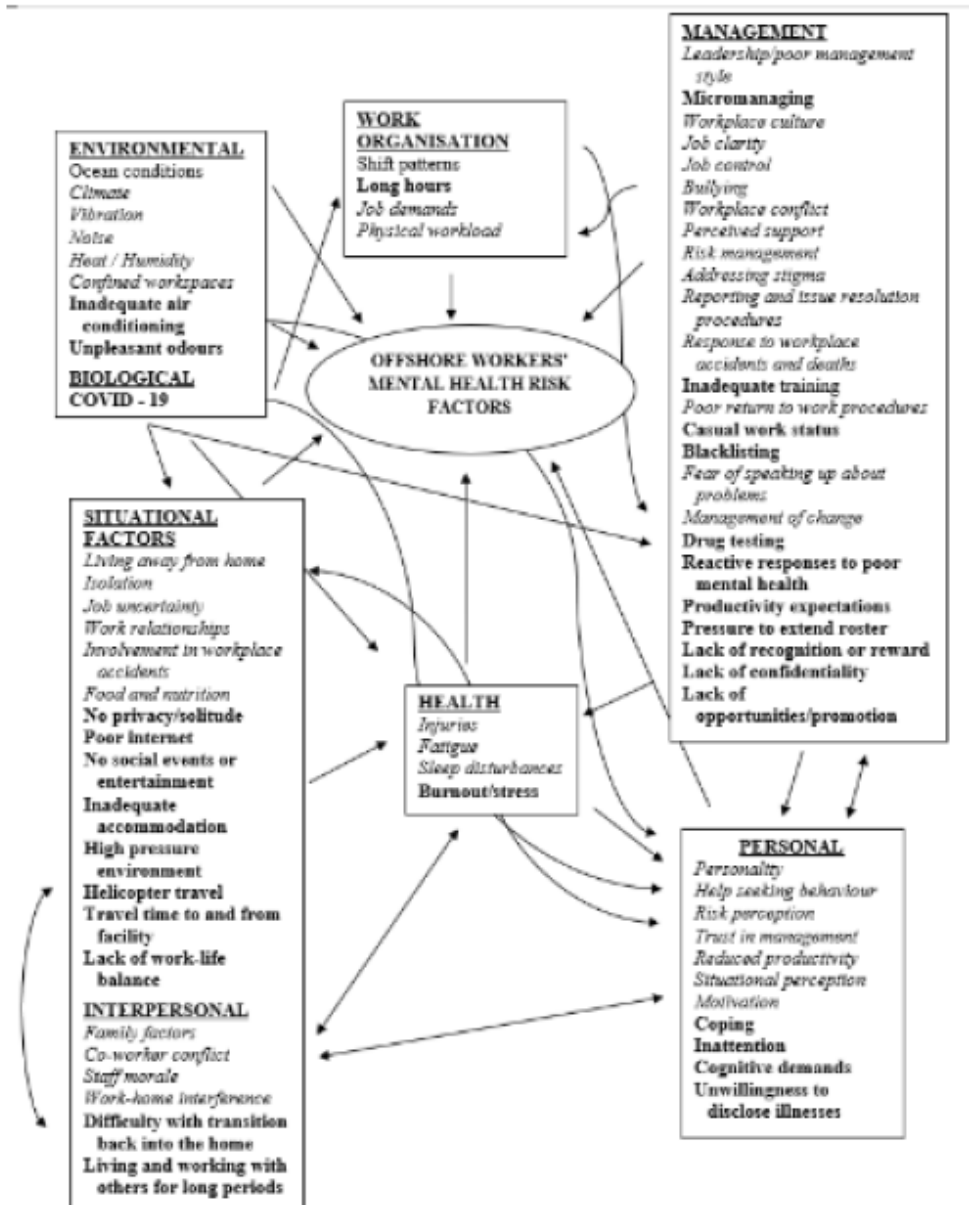
In Australia, exposure to heat has caused more deaths than all other natural hazards together. Northern areas of Western Australia are subjected to much higher ambient temperatures, which are linked to job-related injuries (Opperman et al., 2017), than other areas in the north of the country that are classed as part of the monsoon tropics (Hansen et al., 2008). As extreme heat can worsen existing mental health conditions (Berry et al., 2010), it is fortunate that organisations are managing heat stressors as best they can. At times, the heat is unbearable for offshore oil and gas workers in northwest Australia (P1, P6, P7, P8, P9, P13, P16, P18, P23, P25, P26, P28), having the possibility to affect wellbeing and mood and increase the risk of suicide and violence (Anderson, 2001; Zander, 2015).

As suicide risk is a pre-existing issue for FIFO workers (Nielsen et al., 2013; Parker et al., 2018), it was concerning to learn of incidents that had occurred due to the poor mental health of offshore oil and gas workers. For example, P13 explained that a worker was taken off a vessel and when sent home this worker then killed his housemate. Another worker gained his role as an Integrated Rating due to the employee in the role before him committing suicide (P18).

In 2015, it was estimated that extreme heat reduced work productivity rates by, on average, \$6.9 billion per year (Asare, 2022). Management of these environmental factors are under constant emphasis offshore, with systems in place that ensure maintenance of personal hydration and regular breaks (P13, P16, P22, P26).

Factors included in *italics* in Figure 2 were developed based on a review of published literature. The new knowledge generated through this research is shown in Figure 2, with the new knowledge identified from this research's findings in **bold**.

Figure 2. Identified mental health hazards for offshore oil and gas industry workers



3.5 Revision of the model

Based on information provided by focus group members and the interviewees, several factors were removed from the model, including chemical exposure, poor air quality, work design, lack of job variety, job satisfaction, job-person fit, long hours of work, safety culture and staff turnover. Other

<https://doi.org/10.5281/zenodo.12735353>

factors not mentioned by research participants were pain and motion sickness, past experiences, and cultural/international differences. These therefore were not included in the final model. Coping styles was changed to coping, as styles of coping were not discussed. Rather, participants discussed whether employees were able to cope working offshore or not.

Additional stressors not identified in the literature included inadequate training, lack of confidentiality (breaches of trust), not being recognised or rewarded for hard work, coercion to extend hours and roster lengths by management and organisations, lack of opportunity for promotion and unwillingness to disclose illnesses.

Factors acting as psychosocial stressors identified from the focus group and interviews were added to the revised model, and included unpleasant odours, casual work status, blacklisting, drug testing (particularly for cannabis use), poor management style and productivity expectations:

'I have left a job because I found it too stressful to maintain a high productivity level. Felt better leaving on a high than getting to a point where I failed and was unwilling to show managers I was stressed' (P3).

Pressure to extend rosters (particularly during COVID) was described:

'When time off and pay is negatively adjusted this can also affect people's mental health, such as back-to-backshifts because someone has COVID/is sick and they need you to stay on the rig longer' (P29).

While not offshore, travel (helicopter travel and travel time to and from the facility) impacted employees, as well as transitioning back into the home and readjusting to family life:

'I would say, so when we talk about mental health, so naturally, the offshore environment is by its nature, because you're working towards a target, you're trying to achieve a goal and complete a project is quite stressful, it's quite stressful. There's a lot to deliver. You're working in a, you know, in the middle of the ocean, hundreds of kilometres away from shore, the cabins might not be to everyone's liking, especially if you have, if you're claustrophobic or uncomfortable in those environments. And yeah, going offshore with the pre-existing mental health issue. Now I'm just generally speaking, right, because there's a number of issues and then you've got the isolation, it kind of becomes a compounding effect. And the reason I would say people may not get the same opportunities would be not because they're just a hazard to themselves. But it also might be a hazard to others around' (P27).

No privacy or solitude, inadequate accommodation, poor internet, no entertainment, or social events and working in a high-pressure environment were new stressors identified. Living and working with others for long periods, gender harassment, inattention at work cognitive demands, burnout and stress were included in the updated model.

3.6 Economic effects

The financial costs of poor mental health in the workplace are evident in the literature. Productivity loss in the form of combined absenteeism and presenteeism was estimated at an average of \$2,620,548 per 1000 workers annually (KPMG, 2018). In 2018, KPMG and Mental Health Australia reported that stress or other mental conditions accounted for the largest percentage of conditions that resulted in five

<https://doi.org/10.5281/zenodo.12735353>

or more days of absence from the workplace. Absenteeism due to depression and anxiety is a major global concern (Arends et al., 2010). Employees often take leave from work and companies must cover this absent worker:

'Yes, we have had several people off for an extended time due to mental health/stress, this is where the company has to get a relief and pay someone else' (P4)

Another form of stress relating to financial costs sees offshore workers placed under stress to meet production deadlines and targets:

'It's compensation. It's sick leave, it's backfill, you know. It's loss of production, loss of productive time, it's retraining, you know, there's so many aspects to it. When someone's ill, you might think he's off for a day or, you know, you have someone off for six months for argument's sake. You gotta backfill that role. You gotta cover the wages of both the individual that's working and the individual that's at home getting help, you know, old mate who comes in to backfill, they need to be trained. You know, there's a cost associated with bringing that up. You know, there's the onboarding cost of bringing someone on. There's the HR payroll type administrative costs that sit behind, you know, superannuation charges, annual leave, personal leaves. You know old mate's sick, then you're backfilling a second time, you know, so the impact is huge, then there's the actual interpersonal, unquantifiable type impacts that happen within an organization as well, you know, the stigma of old mate being off because he's got a mental illness or something like that and then you've gotta start training, you know, co-workers. You have to make sure that people are given the opportunity you know to understand what's happening and to support you know, so there's a lot and if they go to hospital, you know it's a completely different game again, right?' (P21).

According to P26, an organisation would absorb the cost of absences and the retraining of new employees during sickness leave of existing employees. Although the organisation may absorb the cost of replacing an employee who is absent from work due to poor mental health, the individual may end up paying for private counselling due to being unwilling to disclose their mental health symptoms:

'Well, it's not cheap getting psychologists to help and I've been through every medical test known to mankind' (P22).

There is also a lack of trust in these services which are linked to the organisation due to breaches of confidentiality (P3, P9, P20). Furthermore, employees' concerns that their organisation may not respond favourably to the disclosure of poor mental health may be plausible. Employers are said to respond differently to psychological injuries in comparison with physical injuries (Wyatt, Cotton, and Lane 2017). Psychological injury claimants maintain that they receive less fair treatment and less support than co-workers who are recuperating from physical injuries. Employees who have disclosed a mental illness or even spoken up about a safety issue find themselves with less opportunities:

'I can speculate that potentially someone who's not in the best mental condition, or someone who may not be in a suitable condition to be working offshore may not have the same opportunities is what I would speculate' (P27).

<https://doi.org/10.5281/zenodo.12735353>

Being limited in terms of career development frustrates and demotivates workers, even impacting interpersonal relationships both at work and at home. Employee performance is lowered (Tessema & Soeters, 2006):

'There's huge economic factors affecting companies and people's performance and ability to do their job is impacted when they suffer' (P15).

Occupational stress is increased by a lack of opportunity for promotion (Mosadeghrad et al., 2011). Furthermore, this has more impact on employee turnover than workload or wages (Shields & Ward, 2011). Mistakes on offshore oil and gas facilities can be extremely costly. The Deepwater Horizon oil spill in 2010 was estimated to cost \$144.89 billion (Lee et al., 2018), traceable to a series of errors which was attributed to the offshore drilling culture of the time (Elkind et al., 2011). Even if the workplace culture is healthy, working in a high-risk environment requires workers to be in the right frame of mind (P13), as lapses in focus and concentration have the potential to cause devastating outcomes:

'You know financially well it does have an impact when people haven't got their mind and their job and having accidents and that probably winds down to safety. If someone's, you know, and you can tell like you've been at sea long enough, you see guys going through marriage breakups. They're not with us, you know, their head's in another place. That is definitely a massive safety issue to it and I've been guilty of it too, and I've had stuff on my mind, you're not thinking about the job. So it's deeper than just mental health and people's well-being. It actually affects, well, the operation, which is a financial thing, least of our worries, but it has a mega impact on health and safety. You know, if someone's doing a critical task and they're worried about, you know, their wife playing up or they've got depression, or they're worried about something that really isn't something to worry about, then that's where I see the big risk of it is that it can, you know, cause injury to others' (P6).

Although screening for poor mental health and mental health programs and interventions are a direct cost to organisations, increasing economic participation of individuals suffering from poor mental health would result in annual economic benefits of approximately \$1.3 billion (The Productivity Commission, 2020). This includes preventative priority reforms and early interventions at approximately \$1.1 billion. Web-based training allows for employee-paced learning, is low cost, offers privacy and does not require space (KPMG and Mental Health Australia, 2018).

Return-to-work programs and interventions for physical injuries fail to consider psychological barriers and mental wellbeing in general when employees are returning to the workplace. Organisations will prioritise returning the employee to the workplace as promptly as possible. Sometimes workers will sidestep the process of the disclosure of psychological illness by taking time off without giving a reason or will claim that the time off is for another reason entirely. Employees without permanent work status will sometimes extend their time off between different jobs if they feel they are not able to return to work, demonstrating that casual workers endure further negative consequences because of their work status.

'And they're losing their jobs so they don't report so much because I don't think they'd report psychological, you know, depression, because they just wouldn't pick them up the next swing' (P24).

<https://doi.org/10.5281/zenodo.12735353>

Being unable to get permanent work is stressful and frustrating and not being able to speak up due to the potential for job loss or social and professional exclusion, demotion, or career sabotage (P21). Casual workers contend with unstable employment status due to the practices of organisations which class their casual workers as not employed by the company as soon as they finish their current work cycle offshore. They are then reinstated again once they are provided with another work cycle (P12, P20).

Depression alone can result in costs to organisations, even when the measures are more proactive, such as screening, treatment and providing support for those with depression. However, this is preferable to the costs associated with reactive mental health measures, where the total costs associated with depression are underestimated. Absenteeism, losses in production and poor focus due to poor mental health, for example, are all ongoing costs for organisations (Eggert, 2010; Grazier, 2019; Iijima et al., 2013; KPMG & Mental Health Australia 2018). In 2017, it was estimated that suicide and poor mental health posed a cost of \$220 billion a year to the Australian economy (Wyatt et al., 2017). More recently, the suicide rate was reported to be between 11-25 in 100,000 for Australian male mining employees, but is likely to be closer to the higher end of this figure (25 in 100,000) over the duration of 2001 to 2019 (King et al., 2023). This appears to be increasing, while rates were declining in other groups of male employees. In addition, it is possible that mining workers have been miscoded as construction employees due to the similarity of job titles in both industries (King et al., 2023).

Bereaved families and friends who have lost a loved one through suicide often struggle to understand the event and may blame themselves, or even experience blame from others, wondering if they could have done more to help or even prevented the death (Australian Institute of Family Studies, 2009; Private Mental Health Consumer Carer Network, 2019). They also experience feelings of anger, isolation, rejection and of being abandoned, complicating their grief and delaying their recovery (Australian Institute of Family Studies, 2009).

Suicides affect work colleagues and can cause high levels of distress, where swift reaction in the form of mental health first aid would be valuable (Golan et al., 2010). People who have been impacted by the suicide of a loved one risk the loss of their employment, are more likely to need to take medication such as antidepressants, are more at risk of becoming dependent on alcohol and drugs (Parliament of Australia, 2010) and are subsequently at a higher risk of suicide (Private Mental Health Consumer Carer Network, 2019). Their relationships with family, friends and partners may suffer (Parliament of Australia, 2010). For those who have lost a loved one to suicide, the loved one may have been the main income provider (Kinchin & Doran, 2017). Likewise, it is not unusual that bereaved individuals leave their employment or feel like they can no longer live in the same home, town or city (Parliament of Australia, 2010).

Fatigue due to mental health conditions can affect focus (Warren, 2015), leading to a reduction in alertness levels and ultimately affecting job performance (Bowers et al., 2018). Good employee mental health is linked to a lower likelihood of mistakes being made and therefore lower risk minimisation of the need for supervision of employees. Some employees feared reinjury when they were returning to work after an injury in the workplace (P5).

Attaining safety outcomes is an ongoing process which can be continually improved upon. Mistakes offshore can have catastrophic consequences. Unfortunately, employees can find themselves in conflict with management due to discrepancies between safety and the authority of employees over their safety concerns and employees can ultimately remain quiet over mistakes which can occur accidentally,

<https://doi.org/10.5281/zenodo.12735353>

particularly when new to the work, or when employees are feeling unhappy about a safety situation (National Academies of Sciences, Engineering, and Medicine, 2018).

Injury caused by lack of attention in the offshore oil and gas industry can result in economic loss for employees too:

'I have witnessed several employees who have had to demobilise early from their swing due to not feeling 100%. This has inadvertently had an impact on them financially. I have also had several reports of cancelled swings offshore due to staff "feeling unwell" and "not being in the right headspace". As to measure the exact proportion of these that relate directly to mental health this would be hard to gauge' (P1).

Where employees suffer from poor mental health, they are reluctant to disclose this due to stigma:

'Because they know that they won't get a job if they if they say look, I'm ADD, ADHD or PTSD or whatever it might be wrong with them, they tend to hide it and say they haven't got anything wrong with them because they know that their company immediately will find somebody that hasn't got that'...' well we do have people unfortunately, it happens every year. We do have the odd person that jumps off the back of the boat in the middle of the night. You know they can't stop anybody from doing that because most of the time, nobody knows it's gonna happen anyway. But if they knowingly take somebody on that is...that hasn't got a... you know a doctor can obviously say this is your condition and it's stabilized with, maybe it's with drugs or with psychotherapy or whatever it is. I would say that any employer of somebody that's gonna be in the middle of an ocean in the middle of nowhere would have to be relatively hesitant to take somebody on with a condition like that. I think that would be fair to say really. But not to not employ them because there's so many different things that could be wrong with somebody and some of them are manageable and some of them aren't I guess' (P20).

The disclosure of a mental health condition increases the potential for casual workers of not being employed and of not being reemployed once disclosure has occurred. It has been suggested that 'if a manager has a choice of 15 employees for a position, they will not choose the one who has depression' (Education and Health Standing Committee, 2014, p. 74). Unwillingness to employ someone who had disclosed a mental health issue has also been reported (Brohan et al., 2012), where supervisors' views of the risk of employing someone with a mental disorder outweighed their preference for disclosure of such matters (Brohan et al., 2010).

Long-term absenteeism undoubtedly results in higher compensation costs than short-term absence from work. Furthermore, performance is impacted and productivity are impacted by ill-managed stress, presenting further significant costs to organisations. Work attendance rates as well as accident rates are affected by poor mental health (James et al., 2018), as employees will return to work earlier if they feel that they have support from co-workers and managers, when there are high levels of morale in the workplace. Return to work rates are better in workplaces which use health and wellbeing programs (Cotton, 2006).

<https://doi.org/10.5281/zenodo.12735353>

Economic effects of poor mental health in the workplace have been described as complex (Greden et al., 2019). Poor mental health is associated with a broad range of costs, which are shared between numerous parties such as employers, workers, families, government agencies and health services. These costs are also interconnected, that is, if the costs of the poor mental health burden are decreased for one group, then this will in turn affect other parties (Dewa et al., 2007). There are also multiple ongoing expenses for a single organisation until the claim is finalised in the form of regular wages, travel expenses to appointments, medical and rehabilitation expenses and in some cases accommodation and food costs. Psychologically injured employees can also claim for other benefits such as regular compensation payments following a lump sum payment (WorkCover WA, 2021).

4. CONCLUSIONS

There was strong agreement amongst the interviewees that poor mental health was likely to affect organisations negatively, as they bear the cost of replacing and training a new employee, as well as organising and retraining the injured employee who returns to alternative duties. Compensation costs, potential negative publicity resulting from a workplace accident or suicide are also damaging for both organisations and employees alike, although these outcomes can be difficult to gauge due to restricted access to official organisational records of financial losses that are caused by poor mental health and wellbeing and can only be garnered through listening to the experiences of individuals through in-depth conversations.

Potential recommendations are to make sure that employees are able to raise issues comfortably and without reproach. It must be ensured that any unacceptable behaviours towards female employees are addressed and handled in a sensitive manner and without reprisals to the employee. The poor company-provided facilities on some installations or vessels should also be addressed and improved. The use of shared accommodation, sometimes with up to four workers per room, and the practice of 'hot bedding' should cease. Another practice that should not continue is the sidestepping of casual conversion of employees that have fulfilled the criteria for converting to permanency.

Organisations should make every effort to provide adequate means of audio and visual communication with employees' families. Internet provision should be substantial enough that it is able to allow maximum usage, for example, at the end of a shift when a large number of workers may contact home. When the interviews had been completed, later feedback from P13 revealed that an upgrade in the satellite internet provider on his vessel had been a 'lifesaver' (P13) for employees' mental health.

Providing a good work-life balance would partially resolve the issue of poor mental health causes for offshore oil and gas workers. Provision of better exercise facilities, social activities and entertainment options would improve the quality of what little downtime workers have. Likewise, food options need to be varied and of good quality. These are all proactive rather than reactive measures which address the causes of poor mental health while working offshore for long periods.

All employees who attend counselling or psychological appointments through the Employee Assistance Program of their organisation should be assured that it is confidential and where confidentiality is breached there needs to be procedures for accountability. Considerations are needed for the suggestion by research participants of mandating the Mental Health 1st Aid course. Organisations are also encouraged to provide resilience-building guidance to offshore oil and gas employees.

<https://doi.org/10.5281/zenodo.12735353>

From the results of this study, there are clear economic effects of psychosocial stressors which are part of the offshore oil and gas working environment. Future research might investigate these costs via a quantitative approach, although the lived experiences of workers which are garnered through qualitative research remain significant, particularly in relation to suicide.

DECLARATION OF CONFLICT OF INTERESTS

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

FUNDING

This research was supported by an Australian Government Research Training Program (RTP) Scholarship.

REFERENCES

- Anderson, C. A. (2001). Heat and violence. *Current Directions in Psychological Science*, 10, 33–38. <https://journals.sagepub.com/doi/abs/10.1111/1467-8721.00109>
- Arends, I., van der Klink, J., & Bültmann, U. (2010). Prevention of recurrent sickness absence among employees with common mental disorders: Design of a cluster-randomised controlled trial with cost-benefit and effectiveness evaluation. *BMC Public Health*, 10(132), 1-9. <http://www.biomedcentral.com/1471-2458/10/132>
- Asare, B. Y. A., Makate, M., Powell, D., Kwasnicka, D. & Robinson, S. (2022). Cost of health-related work productivity loss among fly-in fly-out mining workers in Australia. *International Journal of Environmental Research and Public Health*, 19(16), 10056. doi: 10.3390/ijerph191610056
- Australian Council of Trade Unions. (2018). Work health and safety of workers in the offshore petroleum industry. <https://www.actu.org.au/our-work/policies-publications-submissions/2018/work-health-and-safety-of-workers-in-the-offshore-petroleum-industry>
- Australian Human Rights Commission. (2018). *Everyone's business: Fourth national survey on sexual harassment in Australian workplaces, 2018*, 40. <https://humanrights.gov.au/our-work/sexual-discrimination/publications/respectwork-sexual-harassment-national-inquiry-report-2020#fn7>
- Australian Institute of Family Studies. (2009). *Inquiry into suicide in Australia. Submission 80*, 3. <https://aifs.gov.au/research/submissions/inquiry-suicide-australia>
- Berry, H. L., Bowen, K. & Kjellstrom, T. (2010). Climate change and mental health: A causal pathways framework. *International Journal of Public Health*, 55, 123–132. https://www.proquest.com/docview/194201413?pq-origsite=primo&accountid=10382&_oafollow=false&source=Scholarly%20Journals
- Carmona-Barrientos, I., Gala-León F. J., Lupiani-Giménez, M., Cruz-Barrientos, A., Lucena-Anton, D. & Moral-Munoz, J. A. (2020). Occupational stress and burnout among physiotherapists: A cross-sectional survey in Cadiz (Spain). *Human Resources for Health*, 18(1), 1-10. doi: 10.1186/s12960-020-00537-0
- Bailey-Kruger, A. (2012). *The psychological wellbeing of women operating mining machinery in a fly-in fly-out capacity*. Master's dissertation, Murdoch University, Australia.
- Berthelsen, M., Pallesen, S., Bjorvatn, B., & Knardahl, S. (2015). Shift schedules, work factors, and mental health among onshore and offshore workers in the Norwegian petroleum industry. *Industrial Health*, 53, 280–292. doi: 10.2486/indhealth.2014-018
- Blanchflower, D. G., & Bryson, A. (2020). *Now unions increase job satisfaction and well-being* (No. w27720). National Bureau of Economic Research. <https://www.nber.org/papers/w27720>

<https://doi.org/10.5281/zenodo.12735353>

- Bowers, J., Lo, J., Miller, P., Mawren, D. & Jones, B. (2018). Psychological distress in remote mining and construction workers in Australia. *Medical Journal of Australia*, 208(9), 391-397. doi: 10.5694/mja17.00950
- Brohan, E., Henderson, C., Little, K., & Thornicroft, G. (2010). Employees with mental health problems: Survey of UK employers' knowledge, attitudes and workplace practices. *Epidemiology and Psychiatric Sciences*, 19(4): 326-332. doi: 10.1017/S1121189X0000066X
- Brohan, E., Henderson, C., Wheat, K., Malcolm, E., Clement, S., Barley, E. A., Slade, M., & Thornicroft, G. (2012). Systematic review of beliefs, behaviours and influencing factors associated with disclosure of a mental health problem in the workplace. *BMC Psychiatry*, 12(1): 11. doi: 10.1186/1471-244X-12-11
- Cotton, P. (2006). Management of injured workers with psychosocial barriers. *Australian Family Physician*, 35(12). 958-961. <https://search.informit.com.au.dbgw.lis.curtin.edu.au/documentSummary;dn=360983219989263;res=IELHEA>
- Creswell, J. W. (2009). *A concise introduction to mixed methods research*. SAGE Publications.
- Collins, S. K. & Collins, K. S. (2002). Micromanagement - A costly management style. *Radiology Management*, 24(6), 32-35. <https://pubmed.ncbi.nlm.nih.gov/12510608/>
- Department of Mines, Industry Regulation and Safety (2020). Mentally healthy workplaces audit – technical guide. <https://www.commerce.wa.gov.au/publications/mentally-healthy-workplaces-audit-tool-and-technical-guide>
- Dewa, C. S., McDaid, D. & Ettner, S. L. (2007). An international perspective on worker mental health problems: Who bears the burden and how are costs addressed? *The Canadian Journal of Psychiatry*, 52(6), 346-356. doi: 10.1177/070674370705200603
- Dhuria, D. & Chetty, P. (2017). Explaining validity and reliability of qualitative data in Nvivo. *Project Guru*. <https://www.projectguru.in/explaining-validity-reliability-qualitative-data-nvivo/>
- Education and Health Standing Committee. (2014). Shining a light on FIFO mental health. Perth: Parliament of Western Australia. [https://www.parliament.wa.gov.au/Parliament/commit.nsf/\(InqByName\)/Inquiry+into+mental+health+impact+of+FIFO+work+arrangements#Report](https://www.parliament.wa.gov.au/Parliament/commit.nsf/(InqByName)/Inquiry+into+mental+health+impact+of+FIFO+work+arrangements#Report)
- Eggert S. (2010). Psychosocial factors affecting employees' abilities to return to work. *AAOHN Journal*, 58(2), 51-55. doi: 10.1177/216507991005800203
- Elkind, P., Whitford, D. & Burke, D. (2011). An accident waiting to happen. *Fortune*, 163(2), 105-132. <https://fortune.com/2011/01/24/bp-an-accident-waiting-to-happen/>
- Evans, G. W. & Stecker, R. (2004). Motivational consequences of environmental stress. *Journal of Environmental Psychology*, 24(2), 143-165. doi: 10.1016/S0272-4944(03)00076-8
- Fair Work Act. (2009). (Cwlth) s70. http://www6.austlii.edu.au/cgi-bin/viewdb/au/legis/cth/consol_act/fwa2009114/
- Fair Work Ombudsman. (2023). *Casual employment information statement* [Fact sheet]. <https://www.fairwork.gov.au/employment-conditions/national-employment-standards/casual-employment-information-statement>
- Golan, M., Bacharach, Y. & Bamberger, P. (2010). Peer assistance programs in the workplace. *Contemporary Occupational Health Psychology: Global Perspectives on Research and Practice*, 1, 169-187. doi:10.1002/9780470661550.ch9
- Grazier, K. L. (2019). The economic impact of depression in the workplace. In M. B. Riba, S. V. Parikh & J. F. Greden (Eds.), *Mental health in the workplace: Strategies and tools to optimize outcomes* (pp.1-16). Springer.
- Greden, J. F. (2019). Healthy minds at work: Challenges and strategies for businesses. In M. B. Riba, S. V. Parikh & J. F. Greden (Eds.), *Mental health in the workplace: Strategies and tools to optimize outcomes* (pp.17-26). Springer.
- Hansen, A., Bi, P., Nitschke, M., Ryan, P., Pisaniello, D., & Tucker, G. (2008). The effect of heatwaves on mental health in a temperate Australian city. *Environmental Health Perspectives*, 116(10), 1369-1375. doi:10.1289/ehp.11339
- Henry, P., Hamilton, K., Watson, S. & McDonald, M. (2013). FIFO/DIDO mental health research report 2013. Perth: Lifeline. <https://mates.org.au/media/documents/FIFO-DIDO-Mental-Health-Research-Report-2013.pdf>

<https://doi.org/10.5281/zenodo.12735353>

- Iijima, S., Yokoyama, K., Kitamura, F., Fukuda, T. & Inaba, R. (2013). Cost-benefit analysis of comprehensive mental health prevention programs in Japanese workplaces: A pilot study. *Industrial Health*, 51(6), 627-633. doi: 10.2486/indhealth.2013-0037
- Irani-Williams, F., Tribble, L., Rutner, P. S., Campbell, C., McKnight, D. H., & Hardgrave, B. C. (2021). Just let me do my job! Exploring the impact of micromanagement on IT professionals. *ACM SIGMIS Database: The DATABASE for Advances in Information Systems*, 52(3), 77-95. doi: 10.1145/3481629.3481635
- James, C., Tynan, R., Roach, D., Leigh, L., Oldmeadow, C., Rahman, M. & Kelly, B. (2018). Correlates of psychological distress among workers in the mining industry in remote Australia: Evidence from a multi-site cross-sectional survey. *PLoS ONE*, 13(12), e0209377. doi:10.1371/journal.pone.0209377
- Kinchin, I., & Doran, C. M. (2017). The economic cost of suicide and non-fatal suicide behavior in the Australian workforce and the potential impact of a workplace suicide prevention strategy. *International journal of Environmental Research and Public Health*, 14(4), 347. <https://doi.org/10.1136/oemed-2017-104531>
- King, T., Maheen, H., Taouk, Y. & LaMontagne, A. D. (2023). Suicide in the Australian mining industry: Assessment of rates among male workers using 19 years of Coronial data. *Safety and Health at Work*, 14(2), 193-200. <https://www.sciencedirect.com/science/article/pii/S2093791123000197?via%3Dihub>
- KPMG & Mental Health Australia. (2018). Investing to save: The economic benefits for Australia of investment in mental health reform. <https://mhaustralia.org/publication/investing-save-kpmg-and-mental-health-australia-report-may-2018>
- Landon, L. B., Douglas, G. L., Downs, M. E., Greene, M. R., Whitmire, A. M., Zwart, S. R. & Roma, P. G. (2019). The behavioral biology of teams: Multidisciplinary contributions to social dynamics in isolated, confined, and extreme environments. *Frontiers in Psychology*, 10, 2571. doi: 10.3389/fpsyg.2019.02571
- Lee, Y-G., Garza-Gomez, X., & Lee, R. M. (2018). Ultimate costs of the disaster: Seven years after the Deepwater Horizon oil spill. *Journal of Corporate Accounting & Finance*, 29(1), 69-79. doi: 10.1002/jcaf.22306
- McCabe, D. (2007). Individualization at work? Subjectivity, teamworking and anti-unionism. *Organization*, 14(2), 243-266. doi: 10.1177/1350508407074227
- Miller, P., Brook, L., Stomski, N. J., Ditchburn, G. & Morrison, P. (2019). Depression, suicide risk, and workplace bullying: A comparative study of fly-in, fly-out and residential resource workers in Australia. *Australian Health Review*, 44(2), 248-253. doi: 10.1071/AH18155
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G. & The PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA Statement. *PloS Med*, 6(6). doi:10.1371/journal.pmed1000097.
- Mosadeghrad, A. M., Ferlie, E., & Rosenberg, D. (2011). A study of relationship between job stress, quality of working life and turnover intention among hospital employees. *Health Services Management Research*, 24(4), 170-181. <https://doi.org/10.1258/hsmr.2011.011009>
- Murphy, K., Strand, L., Theron, L. & Ungar, M. (2021). "I just gotta have tough skin": Women's experiences working in the oil and gas industry in Canada. *The Extractive Industries and Society*, 8(2), 100882. <https://doi.org/10.1016/j.exis.2021.02.002>
- National Academies of Sciences, Engineering, and Medicine. (2018). The human factors of process safety and worker empowerment in the offshore oil industry: Proceedings of a workshop. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25047>
- Nielsen, M. B., Glaso, L., Stig, B. M., Eid, J., & Einarsen, S. (2013). Bullying and risk-perception as health hazards on oil rigs. *Journal of Managerial Psychology*, 28(4), 367-383. doi: 10.1108/JMP-12-2012-0395
- Oppermann, E., Brearley, M., Law, L., Smith, A., Clough, A. & Zander, K. (2017). Heat, health, and humidity in Australia's monsoon tropics: A critical review of the problematization of 'heat' in a changing climate. *Wiley Interdisciplinary Reviews: Climate Change*, 8(4): e468. <https://wires.onlinelibrary.wiley.com/doi/full/10.1002/wcc.468>
- Parliament of Australia. (2010). Costs of suicide. https://www.aph.gov.au/parliamentary_business/committees/senate/community_affairs/completed_inquiries/2008-10/suicide/report/c02#c02f4

<https://doi.org/10.5281/zenodo.12735353>

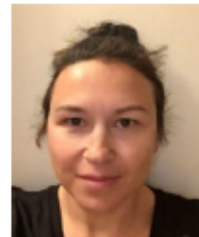
- Private Mental Health Consumer Carer Network (Australia). (2019). *Submission 10*, p. 2. <https://www.pc.gov.au/inquiries/completed/mental-health/submissions#initial>
- Productivity Commission. (2020). *Mental health inquiry report* (Volume 1 no 95). <https://www.pc.gov.au/inquiries/completed/mental-health/report>
- Parker, S. K., Fruhen, L., Burton, C., McQuade, S., Loveny, J., Griffin, M., Page, A., Chikritzhs, T., Crock, S., Jorritsma, K. & Esmond, J. (2018). *Impact of FIFO work arrangements on the mental health and wellbeing of FIFO workers*. Centre for Transformative Work Design. <https://research-repository.uwa.edu.au/en/publications/impact-of-fifo-work-arrangements-on-the-mental-health-and-wellbei>
- Parke, K. R. (2011). *Accommodation on offshore oil/gas installations. Evidence relating to occupancy levels*. doi: 10.13140/RG.2.1.4729.8322
- Parke, K. R. (2012). Shift schedules on North Sea oil/gas installations: A systematic review of their impact on performance, safety and health. *Safety Science*, 50, 1636–1651. doi: 10.1016/j.ssci.2012.01.010
- Parke, K. R. (2015). Shift rotation, overtime, age, and anxiety as predictors of offshore sleep patterns. *Journal of Occupational Health Psychology*, 20(1): 27–39. <http://dx.doi.org/10.1037/a0038164>
- Parke, K. R., Carnell, S. C., & Farmer, E. L. (2005). 'Living two lives': Perceptions, attitudes and experiences of spouses of UK offshore workers. *Community, Work & Family*, 8(4), 413-437. doi: 10.1080/13668800500251755
- Pavičić Žeželj, S., Cvijanović Pelozo, O., Mika, F., Stamenković, S., Mahmutović Vranić, S., & Šabanagić Hajrić, S. (2019). Anxiety and depression symptoms among gas and oil industry workers. *Occupational Medicine*, 69(1), 22–27. doi: 10.1093/occmed/kqy170
- Roberts, B. W., & delVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin*, 126(1), 3-25. doi: 10.1037/0033-2909.126.1.3
- Robinson, A. M. & Smallman, C. (2013). Workplace injury and voice: A comparison of management and union perceptions. *Work, Employment and Society*, 27(4), 674-693. doi: 10.1177/0950017012460307
- Safe Work Australia. (2023). Key work health and safety statistics Australia. <https://data.safeworkaustralia.gov.au/insights/key-whs-stats-2023#:~:text=The%20findings%20from%20the%20latest,account%20for%20most%20fatalities%2C%20and>
- Shields, M. A. & Ward, M. (2001). Improving nurse retention in the National Health Service in England: The impact of job satisfaction on intentions to quit. *Journal of Health Economics*, 20(5), 677-701. [https://doi.org/10.1016/S0167-6296\(01\)00092-3](https://doi.org/10.1016/S0167-6296(01)00092-3)
- Sibbel, A. M. (2010). *Living FIFO: the experiences and psychosocial wellbeing of Western Australian fly-in/fly-out employees and partners*. PhD Thesis, Edith Cowan University.
- Sneddon, A., Meams, K., & Flin, R. (2013). Stress, fatigue, situation awareness and safety in offshore drilling crews. *Safety Science*, 56, 80-88. doi: 10.1016/j.ssci.2012.05.027
- Stanford, J. (2021). *Shock troops of the pandemic: Casual and insecure work in COVID and beyond*. <https://australiainstitute.org.au/report/shock-troops-of-the-pandemic/>
- Sutherland, V. J. & Cooper, C. L. (1996). Stress in the offshore oil and gas exploration and production industries: An organizational approach to stress control. *Stress Medicine*, 12, 27-34. [https://doi.org/10.1002/\(SICI\)1099-1700\(199601\)12:1<27::AID-SMI675>3.0.CO;2-0](https://doi.org/10.1002/(SICI)1099-1700(199601)12:1<27::AID-SMI675>3.0.CO;2-0)
- Tavanti, M. (2011). Managing toxic leaders: Dysfunctional patterns in organizational leadership and how to deal with them. *Human Resource Management*, 6(83), 127-136. <https://www.infona.pl/resource/bwmetal.element.desklight-ef315caf-6826-42af-9ee9-886149cb10a2>
- Tessema, M. & Soeters, J. (2006). Challenges and prospects of HRM in developing countries: Testing the HRM-performance link in the Eritrean Civil Service. *International Journal of Human Resource Management*, 17, 105-186. <https://doi.org/10.1080/09585190500366532>
- Theobald, S. (2002). Gendered bodies: Recruitment, management, and occupational health in northern Thailand's electronic factories. *Women & Health*, 35(4), 7–26. doi: 10.1300/j013v35n04_02
- The University of Adelaide. (2020). *Mind mapping: Writing centre learning guide*. https://www.adelaide.edu.au/writingcentre/ua/media/234/learningguide_mindmapping.pdf

<https://doi.org/10.5281/zenodo.12735353>

- Torquati, L., Mielke, G. I., Brown, W. J., Burton, N. W. & Kolbe-Alexander, T. (2019). Shift work and poor mental health: A meta-analysis of longitudinal studies. *American Journal of Public Health, 109*(11), e13-e20. doi: 10.2105/AJPH.2019.305278
- Underhill, E., & Quinlan, M. (2011). How precarious employment affects health and safety at work: the case of temporary agency workers. *Industrial Relations, 66*(3), 397-421. <https://doi.org/10.7202/1006345ar>
- Warren, T. (2015). Work and social theory. In S. Edgell, H. Gottfried & E. Granter (Eds.), *The SAGE handbook of the sociology of work and employment* (pp.34-51). SAGE.
- Weber, M. (2013). Introduction: The man and his work. In H. H. Gerth & C. Wright Mills (Eds.), *From Max Weber: Essays in sociology* (pp.33-105). Taylor & Francis Group.
- Wheeldon, J. (2018). Reflection/commentary on a past article: "Framing experience: Concept maps, mind maps, and data collection in qualitative research". *International Journal of Qualitative Methods, 17*(1), 68-83. <https://doi.org/10.1177/1609406918790673>
- WorkCover WA. (2021). *Workers' compensation: A guide for employers*. <https://www.workcover.wa.gov.au/resources/forms-publications/employer-publications/>
- Wright, T. A. & Cropanzano, R. (2000). Psychological well-being and job satisfaction as predictors of job performance. *Journal of Occupational Health Psychology, 5*(1), 84-94. <https://oce.ovid.com/article/00060745-200001000-00009/HTML>
- Wyatt, M., Cotton, P., & Lane, T. (2017). *Return to work: A comparison of psychological and physical injury claims. Analysis of the Return-to-Work Survey results*. Safe Work Australia. https://research.monash.edu/files/289621291/284492446_oa.pdf
- Xiang, J., Bi, B., Pisaniello, D., Hansen, A., & Sullivan, T. (2014). Association between high temperature and work-related injuries in Adelaide, South Australia, 2001-2010. *Occupational Environmental, 71*, 246-252. doi: 10.1136/oemed-2013-101584
- Zander, K. K., Botzen, W. J. W., Oppermann, E., Kjellstrom, T. & Garnett, S. T. (2015). Heat stress causes substantial labour productivity loss in Australia. *Nature Climate Change, 5*(7), 647-651. 10.1038/nclimate2623

AUTHORS

Emma D'Antoine, B. Soc. Sci. Psychology, Master Human Rights, Ph.D. candidate in the Department of Petroleum Engineering in the Western Australian School of Mines: Minerals, Energy and Chemical Engineering, Curtin University, researching psychosocial risk factors for offshore oil and gas workers. Member Occupational health Society of Australia. Peer reviewer for Journal of Occupational and Organizational Psychology and Journal of Management and Organization.



Dr. Janis Jansz, is an Associate Professor in Occupational Health, Safety and Environmental Health in the Western Australian School of Mines: Minerals, Energy and Chemical Engineering at Curtin University in Western Australia and a Professor at the Xi'an University of Science and Technology, China. She also works for the Healthforce Group. Janis is the Director of the World Safety Organization National Office for Australia and Vice President of the Occupational Health Society of Australia. She has been awarded Life Membership of the Australian Institute of Health and Safety for many years of work improving, teaching and conducting research to advance occupational safety and health practices and for taking a leadership role the safety and health profession.

<https://doi.org/10.5281/zenodo.12735353>

Professor Ahmed Barifcani, BSc. MSc, PhD in chemical engineering from University of Birmingham (UK), Fellow (FICHEM) and Chartered Scientist (CSci) of the Institution of chemical engineers. Also, an Associate Professor in the Western Australian School of Mines: Minerals, Energy and Chemical Engineering at Curtin University in Western Australia. Over 100 peer reviewed publications related to research in the areas of CO₂ capture, flow assurance, wettability, low temperature separation processes LNG and sour gas separation. Supervision or and co-supervision of 38 PhD and MSc HDR students. Winner of the Curtin commercial innovation award in 2009 first prize.



Dr. Sherrilyn Mills, Bachelor of Business (HRM, IR), Master OSH, PhD has been involved in workers' compensation, injury management, vocational rehabilitation and occupational health and safety since 1997. Together with her extensive research and PhD on individual, organisational and psychosocial factors, that prevent return to work and post workplace injury, Sherrilyn is known as an authority in her field providing transformational change in culture, systems, engagement and in people management.

Sherrilyn has established significant experience and credibility throughout her career predominantly consulting with a variety of national companies to prevent and mitigate the effects of ill-health and injuries in sectors including government, oil and gas, mining, transport and engineering.

Distinguished Professor Mark Harris, John Curtin Distinguished Professor in the School of Economics and Finance (Faculty of Business and Law), Co-Director of the Health Economics Cluster, Member of the Editorial Board of the Journal of Risk and Financial Management and has journal refereeing responsibilities on eleven other journals. Mark's research and publications have generally been in various areas of applied economics and econometrics. Mark has taught the unit of Introductory Econometrics. Publications have generally been in various areas of applied economics and econometrics.



Dr. Christopher Lagat, BSc. in Civil Engineering, MSc and PhD in Petroleum Engineering, Chartered Professional Engineer (CPEng) in Australia's National Engineering Register (NER) and a Member of the Institution of Engineers Australia (MIEAust). Has over 15 years industrial experience in oil and gas reserves evaluation, determination of potential productivity and profitability of oil and gas discoveries, civil and structural engineering design, construction supervision, projects commissioning, project management, procurement, contracts management, health, environment and safety areas. His research areas include reservoir engineering, drilling engineering, CO₂ capture and sequestration, flow assurance, health and safety, decommissioning of oil and gas fields.

CITATION:

D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M., & Lagat, C. (2024). *Psychosocial Hazards Identified at Western Australian Offshore Oil and Gas Facilities and Potential Costs*. World Safety Journal, XXXIII(2), 1–20. <https://doi.org/10.5281/zenodo.12735353>

<https://doi.org/10.5281/zenodo.12735353>

Appendix 18. Author contribution statement

(All publications from this thesis, Appendices 12-17)

I, Emma Caroline D'Antoine, provided the following contributions to the following six journal papers:

D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M. & Lagat, C. (2022). Effects of the COVID-19 pandemic on employees' psychological health in the offshore oil and gas industry and opportunities for improvement. *World Safety Journal*, 31(2), 1-14.

<https://doi.org/10.5281/zenodo.6790705>

D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M., & Lagat, C. (2023). COVID-19 and offshore oil and gas workers: The role of personality. *Social sciences & humanities open*, 7(1), 100402. <https://doi.org/10.1016/j.ssaho.2023.100402>

D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M., & Lagat, C. (2023). The Effects of casualisation on mental wellbeing and risk management in the offshore oil and gas industry. *Universal Journal of Operations and Management*, 44-58.

<http://ojs.wiserpub.com/index.php/UJOM/article/view/2408>

D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M., & Lagat, C. (2023). Psychosocial safety and health hazards and their impacts on offshore oil and gas workers. *Safety*, 9(3), 56.

<http://dx.doi.org/10.3390/safety9030056>

D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M., & Lagat, C. (2024). Psychosocial hazards identified at Western Australian offshore oil and gas facilities and potential costs. *World Safety Journal*, 33(2), 1–20. <https://doi.org/10.5281/zenodo.12735353>

D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M., & Lagat, C. (2024). A theoretical perspective of mental health hazards for offshore oil and gas workers. *Safety Science*. **Under Review**

- Conceptualisation and design of the research
- Data collection and analysis
- Interpretation and discussion
- Writing – original draft preparation

Emma D'Antoine _____

I, as a co-author, endorse that this level of contribution by the candidate stated above is appropriate and consistent with the candidate being named as first author. My contribution to this work consisted of advising on study design, ethical issues, data analysis approach, content advice, editing and proofreading the papers prior to submission.

Christopher Lagat _____

Janis Jansz _____

Mark Harris _____

Sherrilyn Shaw Mills _____

Ahmed Barifcani

N.B. Ahmed Barifcani passed away on 27th August 2023 and is therefore unable to sign this form.

2022



MUA Offshore Update

12 August 2022

[Study on Offshore Oil and Gas Workers Mental Health](#)

We have been contacted by Curtin university to assist in a study relating to Oil and Gas worker's mental health. We are supportive of our members contacting the representative (Emma D'Antoine) to assist in this important study. Once finalised, the study will be made available to us which in effect will give us more tools to be able to use at the bargaining table.

Some of the matters that should be discussed include the following items:

- 1. Noise**
- 2. Vessel Movement**
- 3. Weather (including cyclones and swells)**
- 4. Heat**
- 5. Medicated persons**
- 6. Bullying and harassment – and being stuck on a vessel with nowhere to go**
- 7. Quality of the vessel (including no internet or facilities to contact home)**
- 8. Length of time away from loved ones**
- 9. COVID on board and pre isolation requirements imposed by the employers**
- 10. Safety at work**

Should members identify other mental health matters that impact them, they should take this opportunity to raise it through this study.

Detail on the study is attached and are as follows:

“It has been identified that there is currently a gap in research into the mental health risks associated with offshore work in the Australian oil and gas industry. This study intends to identify these risks through interviews with employees in this industry.

If members have experienced mental health issues (either directly or indirectly) they should make contact with Emma. Should members require mental health assistance, then you're encouraged to contact Hunterlink on 1800 554 654.

This research would involve you:

- 1. Reading the information letter that details all relevant information and giving consent to participate in this research.**
- 2. Taking part in an online recorded video interview to discuss how working in the offshore oil and gas industry affects mental health**

If you are willing to be interviewed please contact Emma D'Antoine at emma.dantoine@postgrad.curtin.edu.au to obtain a copy of the information letter and research participation consent form. We also encourage you to share this opportunity to participate in an interview related to this research with your colleagues.

You are free to withdraw at any point in the study without judgement or negative outcomes. Your identity will remain protected in this study.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number 2021-0512). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

If you have questions or require further clarification please do not hesitate to contact me Emma D'Antoine at emma.dantoine@postgrad.curtin.edu.au or my supervisor Dr Christopher Lagat at christopher.lagat@curtin.edu.au (Phone: +61 8 9266 3007).

Thank you for your time.

Kind regards,

Emma D'Antoine”

Once again if members are concerned for other member's health and wellbeing or their own, don't hesitate to contact Hunterlink on 1800 554 654.

Once again if members are concerned for other member's health and wellbeing or their own, don't hesitate to contact Hunterlink on 1800 554 654.

Call for offshore study participants

Research aims to reduce psychosocial risks for offshore workers

Emma D'Antoine at Curtin University is conducting research on mental health in the offshore oil and gas industry and is looking for potential participants to take part in this study.



Emma is a PhD student of the Department of Petroleum Engineering and is being supervised by Dr Christopher Lagat, Associate Professor Janis Jansz, Associate Professor Ahmed Barifcani, Professor Mark Harris and Dr Sherrilyn Mills. The research, which has the support of NOPSEMA and the Maritime Union of Australia, is looking at multiple stressors that Australian oil and gas workers face when working offshore, including environmental, interpersonal, situational, personal factors, work organisation and work management. The study also looks at the impact of COVID-19 on psychosocial issues for the offshore workforce.

It is anticipated that the study results will be used to identify mental health hazards and implement risk control measures for the offshore oil and gas industry through interviews that aim to determine

the underlying causes of issues that can cause poor mental health.

Research findings will also identify best practices that can be shared to provide opportunities to improve workers' mental health industry-wide.

If you are an offshore oil and gas worker in Western Australia and are willing to take part in an online interview, please contact Emma at emma.dantoine@postgrad.curtin.edu.au or 0405 056624.

Interviews will be held through Microsoft Teams and it is anticipated that each interview will take between 15-45 minutes. The benefits of this research are that best practices in mental health management will be identified to share industry-wide and recommendations made where opportunities for improvements are identified.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number 2021-0512).



In Unity
George Gakis
Assistant Secretary
M: 0412 310 686 | P: 08 9335 0500
E: george.gakis@mua.org.au
Maritime Union of Australia | WA BRANCH



Appendix 20. Self-report measures for employees

Table 7.1.

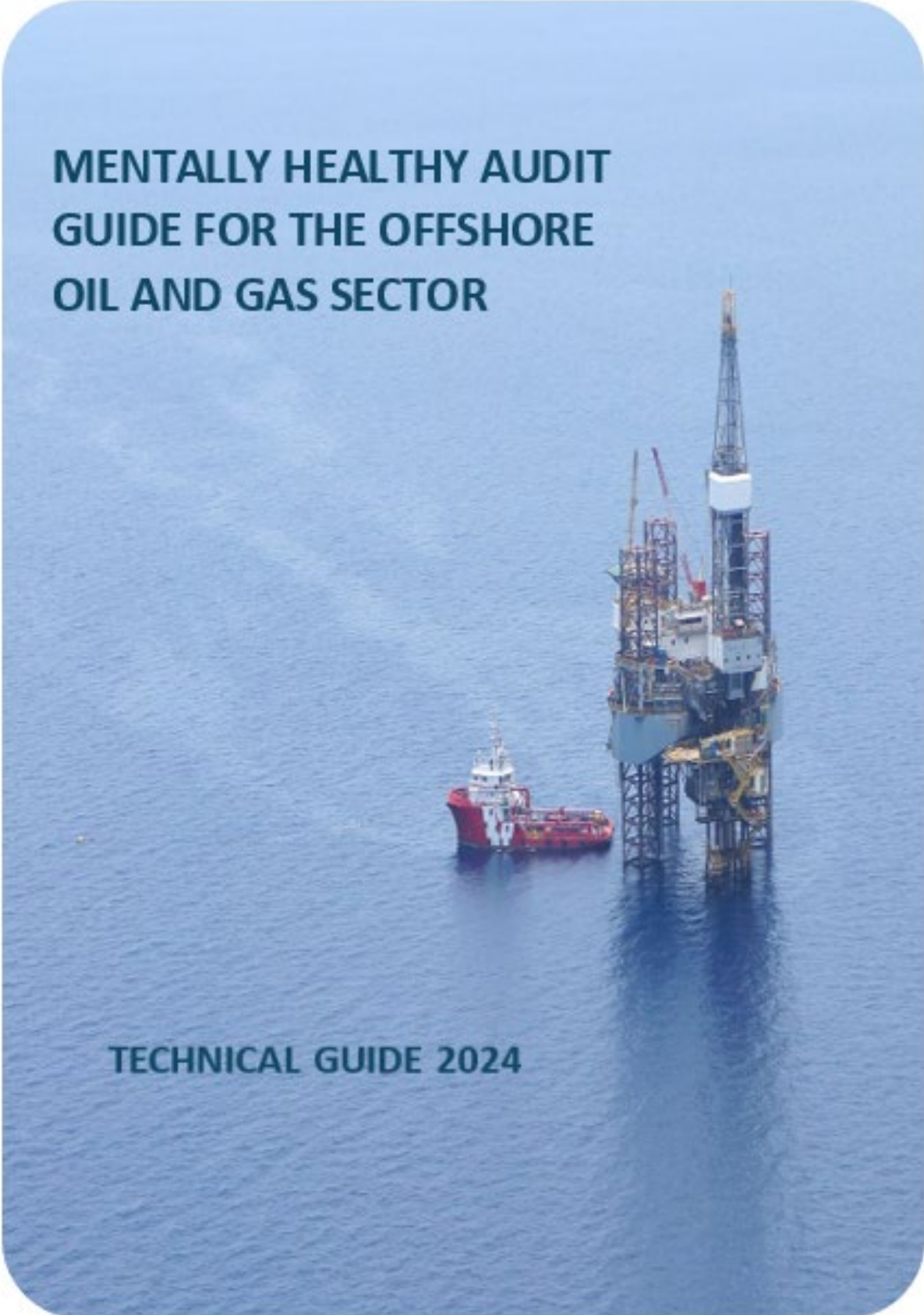
Self-report checklist for offshore psychosocial audit tool

Environmental-Biological	Work Organisation	Management	Situational	Interpersonal	Personal	Health
<input type="checkbox"/> Enclosed workspaces	<input type="checkbox"/> Shift patterns	<input type="checkbox"/> Leadership/poor management style	<input type="checkbox"/> Living away from home	<input type="checkbox"/> Family factors	<input type="checkbox"/> Coping	<input type="checkbox"/> Injuries
<input type="checkbox"/> Climate	<input type="checkbox"/> Long hours	<input type="checkbox"/> Workplace culture	<input type="checkbox"/> Isolation	<input type="checkbox"/> Co-worker conflict	<input type="checkbox"/> Personality	<input type="checkbox"/> Fatigue
<input type="checkbox"/> Vibration	<input type="checkbox"/> Job demands	<input type="checkbox"/> Job clarity (lack of)	<input type="checkbox"/> Job uncertainty	<input type="checkbox"/> Staff morale	<input type="checkbox"/> Help seeking behaviour	<input type="checkbox"/> Sleep disturbances
<input type="checkbox"/> Noise	<input type="checkbox"/> Physical workload	<input type="checkbox"/> Job control (lack of)	<input type="checkbox"/> Work relationships	<input type="checkbox"/> Work-home interference	<input type="checkbox"/> Risk perception	<input type="checkbox"/> Burnout/stress
<input type="checkbox"/> Ocean conditions		<input type="checkbox"/> Bullying	<input type="checkbox"/> Involvement in workplace accidents	<input type="checkbox"/> Lack of work-life balance	<input type="checkbox"/> Trust in management	
<input type="checkbox"/> Heat / Humidity.		<input type="checkbox"/> Workplace conflict	<input type="checkbox"/> Work relationships	<input type="checkbox"/> Difficulty with transition back into the home	<input type="checkbox"/> Reduced productivity	
<input type="checkbox"/> Inadequate air conditioning		<input type="checkbox"/> Perceived support	<input type="checkbox"/> Food and nutrition	<input type="checkbox"/> Living and working with others for long periods	<input type="checkbox"/> Situational perception	

<input type="checkbox"/> COVID - 19		<input type="checkbox"/> Risk management	<input type="checkbox"/> No privacy/solitude	<input type="checkbox"/> Gender harassment	<input type="checkbox"/> Motivation	
		<input type="checkbox"/> Addressing stigma	<input type="checkbox"/> Poor internet		<input type="checkbox"/> Inattention	
		<input type="checkbox"/> Reporting and issue resolution procedures	<input type="checkbox"/> No social events or entertainment		<input type="checkbox"/> Cognitive demands	
		<input type="checkbox"/> Response to workplace accidents and deaths	<input type="checkbox"/> Inadequate accommodation			
		<input type="checkbox"/> Inadequate training	<input type="checkbox"/> High pressure environment			
		<input type="checkbox"/> Return to work procedures	<input type="checkbox"/> Helicopter travel			
		<input type="checkbox"/> Casual work status	<input type="checkbox"/> Travel time to and from facility			
		<input type="checkbox"/> Blacklisting				
		<input type="checkbox"/> Fear of speaking up about problems				
		<input type="checkbox"/> Management of change				
		<input type="checkbox"/> Drug testing				

		<input type="checkbox"/> Reactive responses to poor mental health				
		<input type="checkbox"/> Productivity expectations				
		<input type="checkbox"/> Pressure to extend roster				
		<input type="checkbox"/> Lack of confidentiality				
		<input type="checkbox"/> Lack of opportunities/promotion				
		<input type="checkbox"/> Unwillingness to disclose illnesses				

Note: Adapted from *Psychological hazard investigation report*, by Department of Mines, Industry Regulation and Safety, 2014, Government of Western Australia. <https://www.commerce.wa.gov.au/publications/psychologically-safe-and-healthy-workplaces-risk-management-approach-toolkit>

An aerial photograph of an offshore oil and gas platform in the middle of a vast blue ocean. The platform is a complex of steel structures with a tall central derrick. To the left of the platform, a red and white support vessel is visible. The sky is a clear, light blue.

**MENTALLY HEALTHY AUDIT
GUIDE FOR THE OFFSHORE
OIL AND GAS SECTOR**

TECHNICAL GUIDE 2024

Table of Contents

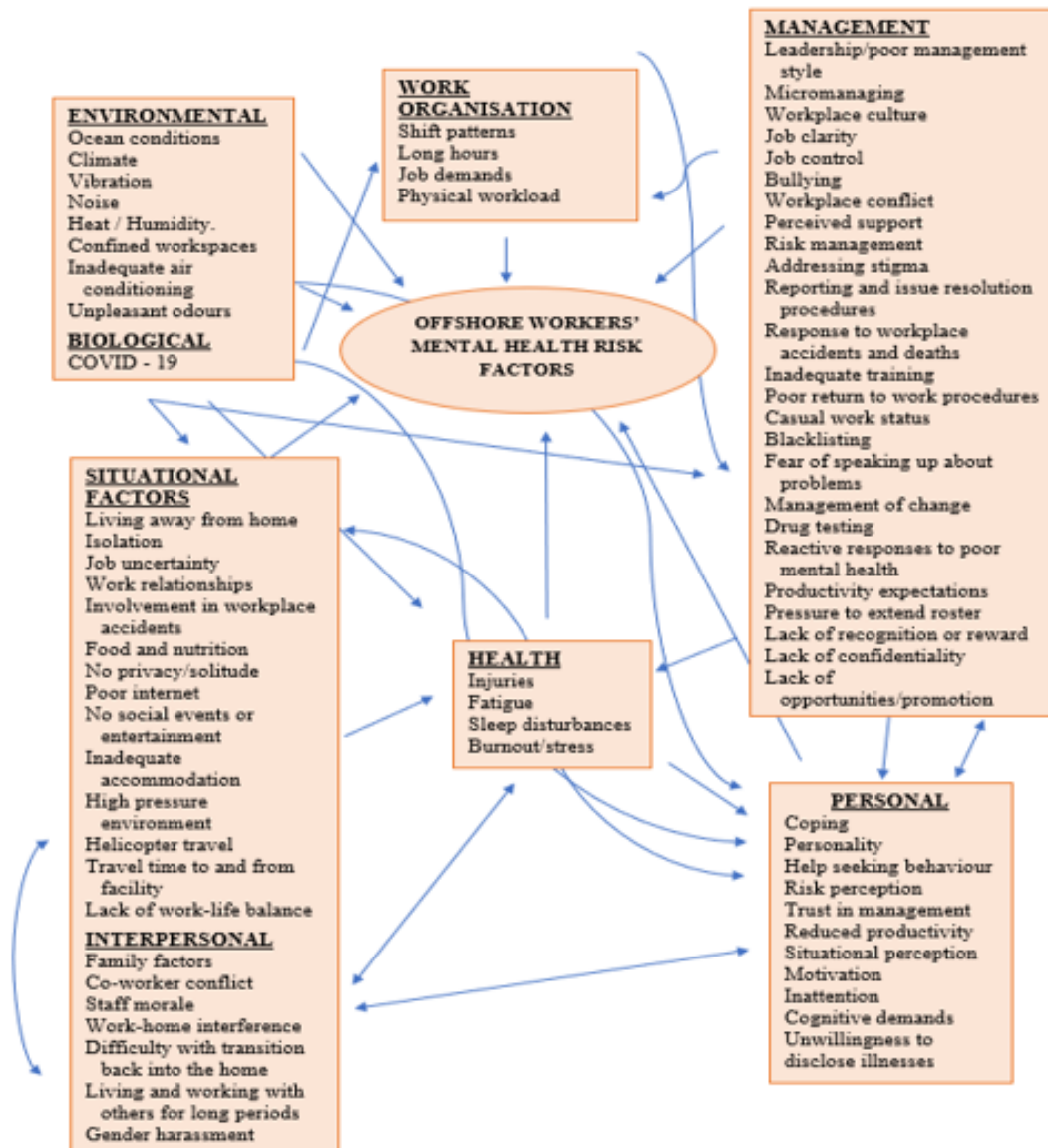
Introduction.....	3
Figure 1. Identified mental health hazards for offshore oil and gas industry workers	4
Legal duties	5
Scope of the audit tool	6
Benefits and audit intent	6
Table 1. Audit intent	7
Using the audit tool.....	9
Examples of evidence and how to collect it.....	9
Example risk control measures	10
Table 2. Sources of information.....	11
References and psychosocial resources	15

Introduction

Developed from industry feedback, the audit tool and technical guide aims to provide a point of reference from which can be implemented by organisations in order to promote a mentally healthy workplace environment. It aims to identify and assess risks on both an organisational and individual level. Employees, and other relevant people, are able to identify the psychosocial stressors they experience in their work environment through the self-report toolkit and, which can assist practitioners in the diagnostic process (DMIRS, 2022b). The audit is based on managing psychosocial risks in the Australian offshore oil and gas industry. Figure 1 shows the psychosocial hazards identified by offshore oil and gas workers in one-on-one interviews.

Figure 1.

Identified mental health hazards for offshore oil and gas industry workers.



D'Antoine, E. C. (2023). *Identifying Western Australian offshore oil and gas workers mental health hazards and risk control measures* [Unpublished doctoral dissertation, Curtin University].

Legal Duties

As stated in the Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGGS Act), facility operators and those responsible for part of an installation must take all reasonably practicable steps to ensure that the facility and activities on the facility are safe and do not harm the health of workers. Because safe systems of work must be implemented and maintained, all reasonably practicable steps must be taken to control psychosocial hazards (National Offshore Petroleum Safety and Environmental Management Authority, 2021). The following duties are related to occupational health and safety under clauses 9-11 of the OPGGS Act:

Clause 9(1): The operator of a facility must take all reasonably practicable steps to ensure that:

- the facility is safe and without risk to the health of any person at or near the facility; and
- all work and other activities carried out on the facility are carried out in a manner that is safe and without risk to the health of any person at or near the facility.

Clause 9(2): The operator of the facility is taken to be subject, under subclause (1), to the following requirements:

- to take all reasonably practicable steps to implement and maintain systems of work at the facility that are safe and without risk to health.

Clause 10(1): A person who is in control of any part of a facility, or of any particular work carried out at a facility, must take all reasonably practicable steps to ensure that:

- that part of the facility, or the place where that work is carried out, is safe and without risk to health; and
- if the person is in control of particular work – the work is carried out in a manner that is safe and without risk to health.

Clause 10(2): A person who is in control of any part of a facility, or of any particular work carried out at a facility, is taken to be subject, under subclause (1), to each of the following requirements:

- to take all reasonably practicable steps to implement and maintain systems of work at that part of the facility, or in carrying out work at that place, that are safe and without risk to health.

Clause 11(1): An employer must take all reasonably practicable steps to protect the health and safety of employees at a facility.

Clause 11(2): An employer is taken to be subject, under subclause (1), to each of the following requirements:

- to take all reasonably practicable steps to implement and maintain systems of work that are safe and without risk to health.

Scope of the Audit Tool

Persons conducting a business or undertaking and those who are responsible for part of an installation must implement and maintain safe systems of work and take all reasonably practicable steps to guarantee that the facility and activities performed on that facility are safe. The purpose of this audit is to enable the organisation to determine if it is effectively managing risk control for psychosocial hazards in the workplace and if not to implement more effective risk control measures. The audit tool also identifies areas where there are good risk control measures implemented by the company for psychosocial hazards. Interviews with managers and other workers, including casual and contracted workers, should be included in the audit process as these individuals are the people who are performing the hands-on work. The employer has a responsibility to eliminate or minimise exposure to psychosocial hazards. Employees can use the self-report toolkit to identify psychosocial stressors. On completion of the audit, organisations should formulate an action plan which can then be used to develop and implement strategies to foster a mentally healthy workplace. A monthly review of the effectiveness of risk control measures for psychosocial hazards should be undertaken by management and improvements made if opportunities for improvements are identified.

The audit tool has been developed in response to the identified stressors in the offshore oil and gas working environment and in accordance with the National Offshore Petroleum Safety and Environmental Management Authority's (NOPSEMA) (2021) guidance note regarding psychosocial risks the framework of the Commonwealth *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGs Act), which is available at

<https://www.nopsema.gov.au/sites/default/files/documents/2021-09/A757599.pdf>

Benefits and Audit Intent

The benefit of the audit is twofold. Workplace health and safety analysis can determine whether practices and procedures comply with health and safety laws and whether there is a need for improvement due to identified weaknesses (Frick, 2011). Considering that many offshore facilities employ casual or temporary workers and so are likely to be constantly changing, audits should be conducted on an annual basis, with reviews of hazards and the effectiveness of risk control measures carried out monthly. Mental health audits can provide insight into workplace health and safety practices.

By establishing and maintaining a workplace that is mentally healthy, organisations fulfill their obligations to prevent harm to the health and safety of their employees. Managers and supervisors also have social and corporate accountability, ensuring that positive mental health is a priority in their workplace. From an organisational perspective, a mentally healthy workplace is associated with increased performance and productiveness, higher levels of worker morale and engagement and reduced levels of absenteeism and presenteeism as well as a decrease in worker turnover. These improvements in the workplace ultimately result in a higher performing company.

To assist in completing the audit tool, the intent of each section is outlined in Table 1.

Table 1.

Audit intent

Psychosocial Hazard	Intent
Environmental	Ensure that stress from adverse climate and ocean events is kept as low as reasonably possible Vibration levels are kept as low as reasonably possible Noise and light levels are kept as low as reasonably possible in relation to rest areas (i.e. accommodation) and employees have appropriate protective equipment Ensure adequate training is given on heat stress or effects of cold and wind Ensure employees are protected from the elements via the provision of weather-appropriate clothing (i.e. breathable or insulated clothing) Ensure air quality is satisfactory
Work Organisation	Ensure that systems of work consider the effects of living away from home on employees and that the risks to the mental health and wellbeing of the workforce have been mitigated Eliminate or mitigate the effects of long hours and shifts Ensure a supportive and inclusive work culture Improve job clarity and job role definitions Implement a code of conduct for identifying and dealing with bullying

Management	<p>Mitigate co-worker conflict</p> <p>Establish a workplace culture that is conducive to positive mental health</p> <p>Enable the implementation of effective preventions and interventions through a leadership committed to the creation of a mentally healthy workplace</p> <p>Ensure that both managers and employees are adequately understand mental health policies and standards</p> <p>Implement mental health awareness training as a mandatory aspect of induction, training and career development</p> <p>Ensure that employees are adequately trained and/or experienced enough to carry out the duties of their employment</p> <p>Ensure appropriate responses to workplace fatalities by providing appropriate support to employees</p> <p>Facilitate smooth management changes</p> <p>Enable employees to speak up about issues and eliminate punitive responses to speaking up</p> <p>Increase recognition of workers' achievements</p>
Situational	<p>Encourage a trusting and honest team environment which encourages respectful differences of opinion</p> <p>Ensure there are sufficient reporting and resolution procedures and encourage reporting of accidents and near-miss accidents which will facilitate the identification of hazards</p> <p>Ensure that stigma surrounding mental health is addressed</p>
Interpersonal	<p>Eliminate gender harassment</p> <p>Ease communication issues with family</p> <p>Improve morale levels amongst employees</p> <p>Encourage help-seeking and effective coping strategies</p> <p>Increase work-life balance</p> <p>Utilise team-building strategies that are conducive to employees working and living together for long periods of time</p>
Personal	<p>Encourage help-seeking</p> <p>Encourage communication with management</p> <p>Promote Mental Health First Aid training</p> <p>Encourage open discussion around mental health</p> <p>Increase trust in management and ensure employee confidentiality</p> <p>Reduce absenteeism and presenteeism and increase productivity</p>

	Improve situational perception Improve work engagement and employee motivation Provide support and adequate relief when there are challenging cognitive demands
Health	Ascertain a suitable level of both physical and mental fitness to return to work Ensure that return-to-work options are wide-ranging and suitable for those with mental health conditions (e.g. providing access to early treatment or intervention options) Prevent secondary injuries through the analysis of work tasks Minimise fatigue, stress and burnout through improving rosters and work schedules

Using the audit tool

The audit tool is designed to identify any workplace psychosocial hazards so that appropriate risk control measures can be implemented and checked to ensure that they are effective. The audit can be used on any offshore facility where there are workers and may be conducted as an internal audit by management or a workplace health and safety representative, or as an external audit by a consultant or whoever the organisation elects as an auditor. The audit tool may be used prior to mobilisation, during the planning stage or during operational stages.

Examples of evidence and how to collect it

As psychosocial hazards may not present themselves as clearly as physical hazards, the types of evidence needed can differ. Both direct and indirect sources can provide evidence of an issue. Direct evidence consists of physical or written evidence that offers direct proof of an issue, for example written documents that show training or information on sources of workplace psychosocial hazards has been given to employees and managers. Indirect evidence consists of evidence which infers the existence of an issue, for example a pattern of behaviour such as a manager providing support to employees which has been regularly observed by witnesses (DMIRS, 2020). In collecting evidence for the audit, the following factors should be considered:

- The environment where work takes place. This will include factors such as noise, temperature, lighting, vibration, confined spaces, air quality and odour. Additionally, potential exposure to traumatic events should be considered.

- How work is designed and managed. Psychosocial hazards and associated policies and procedures should be considered in the context of systems of work.
- The structure and management of the organisation, for example whether adequate training, information, and supervision in relation to preventing harmful exposure to workplace psychosocial hazards is provided.
- Current organisational factors. There may be existing issues within the organisation, for example, change of management, downsizing, high staff turnover or redundancies.
- The equipment used in the workplace.

Example risk control measures

Common psychosocial stressors are set out in guidelines such as Safe Work Australia's (2022) *Model Code of Practice, for managing psychosocial hazards*

<https://www.safeworkaustralia.gov.au/doc/model-code-practice-managing-psychosocial-hazards-work>

NOPSEMA's (2021a) *Psychosocial Risk Management Guidance Note*, <https://www.nopsema.gov.au/sites/default/files/documents/2021-09/A757599.pdf>

and the Department of Mines, Industry Regulation and Safety's (2022) and *Risk Management Approach Toolkit*,

https://www.commerce.wa.gov.au/sites/default/files/atoms/files/psychologically_safe_and_healthy_workplaces_risk_management_approach_toolkit_inc_inv_report_march_2015.pdf

(which itself was sourced from WorkSafe Victoria, Comcare and Health & Safety Executive, UK). Table 2 shows the sources of information which can be used when conducting a psychosocial audit within the workplace. This information was obtained through in-depth interviews with offshore workers.

Table 2.*Sources of information*

Sick leave records	<ul style="list-style-type: none"> Analyse types of illnesses and look for recurrent patterns in symptoms which could be caused by stressed, such as headaches, digestive system ulcers and disorders, musculoskeletal disorders and muscle tension, recurrent colds and flu, skin conditions, high blood pressure and recurrent viruses.
Annual Leave	<ul style="list-style-type: none"> Analyse patterns of use of annual leave. Are employees using up their leave in small increments? This is associated with poor working conditions and psychological health. Workers should also not be using leave for events beyond their control, for example, the governmental quarantine requirements during the COVID-19 pandemic. Unused leave may also indicate issues.
Absenteeism records	<ul style="list-style-type: none"> Analyse trends and patterns in areas of the workplace – do any workers have more frequent or longer absences than others? Are rates of absence higher under a particular manager or leadership? Does the same small team show higher rates of absence than others? Are the rates of absences or duration increasing?
Workers' compensation claims	<ul style="list-style-type: none"> Analyse workers' compensation claims for psychological injuries and work-related stress, poor mental health and mental health conditions, as well as possible stress-related physical conditions. Check for claims that are ongoing or long duration, such as sprains and strains.
Complaints and Grievances records	<ul style="list-style-type: none"> Analyse for trends or patterns in the complaints. Are the complaints specific to a certain area of the organisation or under a certain manager/supervisor? Grievance cases and information can reveal issues that commonly result in psychosocial risk to employees, such as bullying, harassment, aggression and discrimination. Are there ongoing industrial disputes? These are stressful processes.
Incident and injury records	<ul style="list-style-type: none"> Analyse dates and times of injuries and accidents and check to see if they coincide with certain events or trends. This may reveal the sources of psychosocial hazards at work. Determine whether accidents are associated with fatigue
Employee Assistance Program	<ul style="list-style-type: none"> What are the trends in usage of Employee Assistance Programs (EAP)? What are the main issues which have been identified by employees? Are employees aware of the EAP, particularly when they have witnessed a workplace accident or death or have been involved or witnessed workplace violence or other traumatic events? Is there absolute confidentiality in the counselling service provided? Has EAP usage increased?

<p>Documents and policies relating to work</p>	<ul style="list-style-type: none"> • Check roster arrangements, in particular length of rosters, if there are any protracted hours of work, rotation of shifts and a substantial number of days worked consecutively. Check for shift rotations (i.e., that the same shift is maintained throughout the swing). Do workers have work-life balance? • Check break times and length, especially during extreme weather events. • Measure job demands through the analysis of job tasks – consult the description of physical demands needed to carry out the tasks of a job. • Consider an objective evaluation of the cognitive, emotional, and psychological skills needed to carry out the tasks of a job. • Check that there are processes in place to identify and deal with bullying. • Check that there is an organisational code of conduct. • Is there an organisational policy in place that ensures that workers are not treated unfairly if they speak up about any work-related issues? • Check whether there is a risk management system that addresses psychosocial hazards in a similar manner to physical hazards. • Examine the procedure for conducting risk assessment and implementing risk controls where a hazard has been identified. Does the organisation look for trends in psychosocial hazards? • Check the policy regarding casual and temporary employees. What is the policy for casual workers? Are they able to convert to permanent work status if they fulfill the criteria, or are they laid off and re-employed when they return offshore? • Investigate the return-to-work procedures to determine that the mental as well as physical health of those returning to work is considered and that appropriate adjustments are made, and support given. Is there an emphasis on the prevention of secondary injuries? • During times of change, are employees involved in decision-making processes, given clarity on the changes and the effects they will have on the worker? Are workers encouraged to discuss their concerns? Are workers kept up to date with changes and are they provided with adequate support? • Is there a system in place for dealing with breaches of confidentiality? • Investigate whether the organisation uses reports of accidents and near-misses to identify patterns and trends in incidents. Small, seemingly minor accidents and near-accidents can reveal factors that are useful in preventing further (and less minor) incidents. • Is there an established organisational policy for when workers request to return onshore due to family emergencies or personal illness?
<p>Training and education</p>	<ul style="list-style-type: none"> • Check if managers and supervisors are trained to identify conflict and have clear guidelines on the consequences of poor behaviour. • Check if conflict resolution training is offered to managers and other workers. • Check that employees are all adequately trained for their role. • Determine whether there is a buddy system in place, or a chance for new workers to shadow a more experienced colleague. • Establish whether there are e-learning and micro-learning opportunities. Are opportunities for skills improvement offered? • Check whether workers have access to Mental Health First Aid training. • Are there procedures that enable the identification of fatigue due to environmental, individual, and organisational risk factors?

Appendix 22. Mentally Healthy Offshore Workplace Audit Tool

Business name:..... **ABN/CAN:**.....

Business address:..... **Postal address (if different**.....

No. of employees (Full-time equivalent):..... **No. of HS Reps:**.....

Name of primary contact person:.....: **Phone:**.....**Email:**.....

Area/site location: **Attendees present:**.....

Audit date and time:.....**Audit completed by:**.....

Level of Risk

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
A (almost certain)	High	High	Extreme	Extreme	Extreme
B (likely)	Medium	High	High	Extreme	Extreme
C (possible)	Low	Medium	High	Extreme	Extreme
D (unlikely)	Low	Low	Medium	High	Extreme
E (rare)	Low	Low	Medium	High	High

LEGEND		RR = RISK RATING
L = Likelihood.	C = Consequences	E extreme risk: immediate action required
C = Certain.	H = High	H high risk: senior management attention required
P = Possible.	M = Moderate.	E extreme risk: immediate action required
R = Rare.	L = Low.	M moderate risk: management responsibility must be specified
		L low risk: manage by routine procedures.

Note: Adapted from *Risk Matrix*, by WorkSafe, n.d., Government of Western Australia. <https://www.commerce.wa.gov.au/atom/4207>

PART 1 – ENVIRONMENTAL HAZARDS

Psychosocial Hazard	Check Guideline	Yes	No	Risk			Evidence sighted	Additional risk control measures required. Other comments
				L	M	H		
Ocean conditions	If an adverse ocean event is expected, for example an oceanic storm surge from a cyclone or other low-pressure system, the organization has suitable procedures and plans in place to ensure safe work and travel arrangements are in place for personnel			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Climate	The organization has suitable and clearly communicated response plans and protocols for bad weather events, (i.e. cyclones, heavy wind and rains), shutdowns and evacuations			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Vibration	Using a vibration analyser, measurements are carried out in accordance with the international standard DS/EN ISO standard 5349-2 and ISO standard 20283-5:2016, the standard on guidance on the assessment of vibrations, or other appropriate Australian or international standards.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Fittings are isolated and other risk control measures, e.g., dampers, are utilised at the vibration source.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	How up to date with new and suitable technology is the vessel?			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Noise and light	Workers have appropriate hearing protection at work and sound proofing in the accommodation block. For example, ear plug dispensers near exits, suitable signage near rooms with high noise levels, suitable additional hearing (earmuffs) for areas where single hearing protection is not suitable.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	The organisation provides guidance and manages background noise such as radios and mobile phones, making noise, having conversations, slamming doors and so on.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employee accommodation is as far away as possible from ongoing operation noise.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Everything in accommodation blocks is secure, especially for vessels and MODUs, as things can fly around during severe weather.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees are provided with high-grade ear protection for sleep if this is requested.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Black-out curtains are used in the accommodation block.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Heat / Humidity	Adequate breaks are provided for employees.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Keeping hydrated is promoted to employees on a regular basis. Employees have sufficient and constant access to means of hydration. Distance to the nearest water fountain/fridge is considered.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Workers are trained on the hazards of heat stress and are able to recognise the signs			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

	and symptoms of heat stress and heat stroke.							
	The organisation has an emergency plan in place for incidents of heat stress.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Sunblock is readily available on vessels and facilities.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	The organisation provides flame-resistant protective clothing.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Cold and wind	Managers assess if it is safe for workers to be working outside. If it is safe, individuals are allowed to take extra breaks when conditions are bad.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	There are Job Risk Assessments and Toolbox Talks for critical tasks that may need to be completed even in relatively extreme conditions.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees are provided with sufficient insulated or thermal clothing.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Local heaters and draught reduction measures are used.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Enclosed workspaces	There is adequate ventilation in the enclosed areas.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Prior to the commencement of work if a enclosed space contains chemicals or other hazardous substances, protective equipment such as respirators, gloves, goggles, and overalls are used if work is to be performed in this enclosed space.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Spills are cleaned up immediately as long as this does not place personnel in danger. Risk must be accommodated at all times.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Inadequate air conditioning	Air-conditioned rooms and communal spaces are provided.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Unpleasant odours	Breathing masks such as activated carbon masks or another similar respiratory barrier are provided to filter out odours, if requested.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Spills are cleaned up immediately as long as this does not place personnel in danger. Risk must be accommodated at all times.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

PART 2 – WORK ORGANISATION HAZARDS

Psychosocial Hazard	Check	Yes	No	Risk			Evidence sighted	Additional risk control measures required. Other comments
				L	M	H		
Long hours	Short rest breaks are implemented during operations, activities are rotated (where appropriate).			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees do not work over 12 hours per shift and a replacement worker is available to take over.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Shift work	The same shift is maintained for the entirety of the swing (no shift rotations), and prior to mobilisation, takes into account individual preferences for types of shifts (Day or Night).			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Job demands	Adequate time and resources to complete tasks by analysing job tasks are provided.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Work is tailored to individual capabilities and skills.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Job or task demands are considered from both physical and psychosocial viewpoints.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Physical workload	Where possible, work is distributed evenly between team members if there is a heavy physical workload.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	During periods of high production and demand, workload is monitored and provisions for added support are made, if possible.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Risk management policies for fatigue are clearly communicated.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

PART 3 – MANAGEMENT HAZARDS

Psychosocial Hazard	Check Guideline	Yes	No	Risk			Evidence sighted	Additional risk control measures required. Other comments
				L	M	H		
Leadership/poor management style	There is a commitment to a leadership style which fosters wellbeing in the workplace (consultative leaderships style).			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	The working environment is inclusive.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	The organisation consults with employees when making decisions which affect the working environment or work processes.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Risk assessment is completed at a management level (CSR/OCM/HSE), and if deemed acceptable, communicated with personnel during JRA. If any additional risks that compromise the personnel come up, the job may be reconsidered, or additional measures put in place.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Company is committed to implementing procedures and policies which support the overall mental health of workers.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Leaders receive training in identifying psychosocial hazards and workers who may require assistance or support.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees are provided with full explanation on what to expect prior to employment and mobilisation offshore.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Workplace culture	The workplace culture is open, respectful and values equality.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Mental health awareness training is a mandatory aspect of induction, training and career development.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Open dialogue around mental health in the workplace is encouraged.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Information about mental health in the workplace, including communal areas, is openly displayed.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Managers and leaders model respectful behaviours and show that unacceptable behaviours are not tolerated.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Job clarity (lack of)	Position descriptions are up to date.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Role objectives, responsibilities, and expectations are clearly communicated.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Clear explanations as to how roles fit into the team and into the wider organisation are given			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Job control (lack of)	Employees are involved in decision making processes.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees have reasonable control over the pace they work and order of tasks they are to complete.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Bullying - Verbal or physical abuse	See Bullying under part 5 - Interpersonal hazards.							
- Negatively influencing career options/holding people back	Opportunities for growth and development are offered.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Interpersonal relationships	An honest and open communication style in teams at all levels of the workplace is encouraged and demonstrated.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

	A workplace culture that enables colleagues to trust and support each other to do their best is promoted and demonstrated			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Workplace conflict	Leadership styles that incorporate conflict resolution skills are implemented.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Managers and supervisors are trained to identify conflict and seek resolution as early as possible.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Consequences for poor behaviours are communicated clearly to personnel.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Conflict resolution training is offered to all employees.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Perceived support	A one-on-one supervision or a “buddy system” is provided for new employees.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Workers are consulted with regularly.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees are made aware of the support available (i.e. EAPs, helplines, medics, HSRs).			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	An inclusive environment is promoted.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Risk management	There is a risk management system in place which approaches physical and psychosocial hazards in the same way.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	There is a system for determining trends in the workplace which identifies psychosocial hazards and their risk factors.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	A risk assessment is conducted where a risk has been identified, and appropriate risk control measures are implemented and are monitored regularly.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Stigma	An organisational strategy for providing a mentally healthy workplace is established with a component aimed at reducing associated stigma.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Reporting procedures	The organisation encourages the reporting of accidents and incidents and issues are dealt with in a timely and confidential manner.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

	There is an organisational process in place that ensures employees are not treated unfairly for reporting accidents, incidents, hazards or issues.							
Response to workplace accidents and deaths	Those who have witnessed a traumatic event have access to Employee Assistance Program.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	If required full support is provided to family, friends, and colleagues, including counselling, and fully paid leave for effected company workers.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Inadequate training	Prior to deployment it is checked to ensure that employees are adequately qualified for their role.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	There is a ‘buddy’ system in place for new employees and they are able to shadow a more experienced worker.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	e-learning and micro-learning opportunities as well as face to face educational opportunities to develop required skills are offered.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	There are opportunities for personnel to update their skills when there are changes in work processes or work equipment.							

Poor return to work procedures	The return-to-work system is robust and includes the evaluation of mental health as well as physical health.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Task demands and psychosocial risks are analysed with the aim of preventing secondary injuries.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	The supervision provided is supportive.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Casual work status and employment uncertainty	Permanency for casual workers means that a constant turnover of employees is not moving through the workplace.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees who wish to convert from casual to permanent work status after completing the minimum required employment duration are able to do so.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	When working in a FIFO relationship all time spent at the workplace should be included, rather than counting each time the casual employee comes onto the rig as a new employment, and their fly out time as not being employed. Casual contracts just short of a year should not be issued and then, after a short period, a new contract commenced so that the worker cannot be given permanent employment as the worker has not worked for more than 12 months for the same employer.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Blacklisting	The use of databases which use a ‘blacklisting’ system for employees who have spoken up about safety or other issues within the workplace should not be in utilised by the company.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Fear of speaking up about problems	Workers are protected from reprisals for reporting events, incidents, risks or hazards through Whistle blower protections – rules administered and enforced by Australian Securities & Investment Commission (ASIC). Whistleblower protections on the ASIC website are somewhat limited. The auditor should seek evidence that the organisation has its own whistleblower policy and processes.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Management of change	Employees are involved in discussions and decisions and provided with reasons for the change(s).			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	The organisation explains what the changes will be to employees, including anticipated outcomes and timeframes.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	The company are upfront and open about any substantial readjustments required resulting from the change(s).			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	There is an open-door policy for workers to discuss their concerns.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Workers are kept up to date with developments through emails or meetings.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Support from supervisors during times of change is provided to employees.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Job descriptions reflect any new duties and responsibilities assigned following the change(s).			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Reactive responses to poor mental health	Proactive interventions such as stigma reduction, employee surveys, job crafting, improvement of facilities, mental health interventions and resilience training are utilised.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Opportunities for physical exercise and other stress-reducing strategies such as yoga and meditation are made available.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Productivity expectations	The organisation fosters a work culture that explicitly values the quality of work rather than quantity alone.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	If there is a high rate of staff turnover in the workplace, reasons for leaving are collected, analysed and changes are made if required.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Pressure to extend roster	Extra workers are employed when production levels are high.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees are not subject to additional pressures to extend their roster when production is at a high level (<i>refer to sections in the General Protections Bench book prepared by the Fair Work Commission, 2022 which aim to manage coercion and undue pressure</i>).			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Lack of confidentiality	There is a system in place for dealing with breaches of confidence.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Investigations as to how and why confidentiality has been breached are conducted in a timely manner and risk control measures are implemented.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Low recognition or reward	Supervisors give positive feedback to employees as appropriate.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	A reward system for workers who go ‘above and beyond’, or if the team has worked especially hard to meet production targets, is utilised. Rewards can be informal, such as a thank you or well done, or formal, such as vouchers, shares, bonuses, prizes or incentives.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Both individual and team achievements are recognised.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Coercion	Offshore workers are protected from pressure and coercion from management through the legislation against <i>coercion</i> (section 343) and <i>undue influence or pressure</i> (section 344), as noted in the General Protections Bench book (Fair Work Commission, 2022).			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Lack of opportunities/promotion	Opportunities for growth and development are offered to all employees.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	The system for career and professional advancement is clearly exhibited.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Unwillingness to disclose illnesses	There is a focus on building trusting relationships between managers and workers.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	For mental illness, there is encouragement for the use of a ‘pros and cons’ tool for disclosure or a ‘conversation planner’ such as those available through Heads Up: https://www.headsup.org.au/your-mental-health/talking-about-a-mental-health-condition-at-work/disclosure-tool			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

PART 4 – SITUATIONAL HAZARDS

Psychosocial Hazard	Check Guideline	Yes	No	Risk			Evidence sighted	Additional risk control measures required. Other comments
				L	M	H		
Work relationships	A team culture and the team as a source of support is promoted.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Perceiving differences in opinion as positive is encouraged.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	A trusting culture, with open and honest communication, is fostered.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Group rewards, so that teamwork is recognised, reinforced, and promoted.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Conflict management training is provided to employees as well as managers.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Fear of making a mistake	The organisational culture encourages open discussion and the reporting of accidents and near-misses and considers the organisation as a whole when accidents or incidents occur which avoids blame being apportioned to individuals.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	The organisation exhibits behaviours that models to employees that their health and wellbeing is paramount, and that production is not above their safety.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Involvement in workplace accidents - reporting procedures	All accidents and near-misses are reported so that organisations may understand the patterns and precedents occurring in relation to safety.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
- incident investigation	Incidents are investigated in a timely manner.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Incident reports such as hazards, risks and accidents are regularly reviewed to understand precursors to accidents such as fatigue or stress.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Inadequate company-provided food and nutrition	The company provides good quality and varied food.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	There is a consultation process with employees about food which utilises group discussions or questionnaires to identify what is done well and where there are opportunities for improvements to be implemented.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
No privacy/solitude	There are spaces for employees to retreat to for a period of time after a shift has ended that is free of auditory or visual stimuli.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Living away from home in a remote location	Workers can communicate with their families via video link without interruptions and in privacy.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Poor internet	Workers have access to adequate internet so that they are able to call their families even at maximum usage and able to see the person or people they are talking to without interruptions.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

No social events or entertainment	There is a variety of entertainment such as movies, board games, card games, books, and social gatherings provided.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Inadequate accommodation	All employees have single accommodation.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	The practice of ‘hot bedding’ is not in use and employees keep the same bed for the duration of their swing.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Accommodation is comfortable with respect to environmental factors.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	If employees share a cabin, it is with a worker on the opposite shift to them.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
High pressure environment	The organisation bases production expectations on achievable targets.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	At peak production times, employees are monitored for signs that the workload is manageable, and work is adjusted if necessary.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Workloads are monitored and additional staff are employed if workload is not manageable.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Workers have regular breaks, particularly in extreme heat.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Travel time to and from facility	For those who have to travel for over a certain time (more than 12 hours) in order to reach the transport to the facility, extra leave to account for travel time is provided.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees who have long travel times do not start their shift immediately (for example, if they arrive in the morning, they are placed on night shift).			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

PART 5 – INTERPERSONAL HAZARDS

Psychosocial Hazard	Check Guideline	Yes	No	Risk			Evidence sighted	Additional risk control measures required. Other comments
				L	M	H		
Gender Harassment - Innuendo and jokes - Inappropriate comments - Devaluing women's opinions Bullying – Physical/verbal	The organisation makes it clear that implicit or explicit offensive or sexist jokes are not validated through silence, excuses or remaining silent.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Inappropriate behaviours can constitute sexual harassment.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Responses to sexual harassment are clearly communicated.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees may raise concerns regarding inappropriate behaviour in a safe manner by being provided with the appropriate tools and language.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	During meetings, there is a fair share of voices heard and the opinions of all speakers are allowed and acknowledged.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	The organisation conducts workplace observations to assist in the understanding of how employees interact with each other and also how managers and workers interact.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	The organisation refers to organisational code of conduct.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Processes are in place to identify bullying and risk factors for bullying.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Family factors	If requested employees are flown home when a family emergency occurs.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Psychosocial Hazard	Check Guideline	Yes	No	Risk			Evidence sighted	Additional risk control measures required. Other comments
				L	M	H		
	Workers are provided with the ability to communicate with family via video link.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Private spaces are provided for workers to communicate with family.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Co-worker conflict	See workplace conflict resolution under part 3 - Management.							
Staff morale	Facilities are adequate and provide comfort, privacy and opportunities for physical exercise and socialisation.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Good quality and varied food options are provided.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Work-home interference	Effective coping techniques such as 'problem-focused' coping are encouraged.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Help-seeking for stressors which affect the family is encouraged.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Fatigue levels are kept ALARP, as fatigue and work-home interference can result in a reduction in alertness and focus.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Lack of work-life balance	Employees have at least equal time offshore and onshore.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Difficulty with transition back into the home	Encourage regular contact with family while offshore and provide the means to communicate with them.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Ensure fatigue levels are kept as low as possible, as tiredness exacerbates the emotions experienced during transitions between home and work and vice versa.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Psychosocial Hazard	Check Guideline	Yes	No	Risk			Evidence sighted	Additional risk control measures required. Other comments
				L	M	H		
Living and working with others for long periods	Ensure that employees who work closely together have separate accommodation.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Promote team culture and the team as a source of support			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Reward group efforts.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Organise team building events as much as the environment allows.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

PART 6 – PERSONAL HAZARDS

Psychosocial Hazard	Check Guideline	Yes	No	Risk			Evidence sighted	Additional risk control measures required. Other comments
				L	M	H		
Coping	When employees are experiencing stress or exhibiting poor coping skills, they are encouraged to seek help.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Work demands are assessed regularly, in consultation with workers.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Help-seeking behaviour	Employees are encouraged to seek help early for any concerns.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	The workplace maintains an open communication style and ‘open door’ policy.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Mental health first aid training is accessible for all employees.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees are encouraged to discuss mental health in the same way they discuss physical health.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees have access to a peer support program.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Wellbeing checks are utilised once initial support is in place.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Risk perception	The organisation displays a commitment towards safety.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Bullying and risk factors for bullying are identified by the organisation.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Fatigue levels are kept as low as reasonably practicable (ALARP).			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Trust in management	Open and honest communication is promoted in the workplace.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Worker confidentiality is not breached.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	An environment that shows consistency with the principles of respect, dignity, and cooperation in the OH&S system is promoted.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Reduced productivity	The number of casual employees in the workplace is limited and workers with casual status are given the opportunity to convert to permanent work status.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	There is a system for determining trends in absenteeism and presenteeism in the workplace.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Worker fatigue and burnout are kept ALARP.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Situational perception	Fatigue and burnout are kept ALARP.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Sleep loss and fatigue are minimised ALARP. particularly for those who work night shifts.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Motivation	Employees are involved in decision making about matters which affect their role and working environment.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees are encouraged to achieve milestones and to stay motivated and engaged.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Cognitive demands	During cognitively challenging tasks, further practical support is provided.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	During competing tasks, job demands are reduced.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Monotonous or mundane tasks are rotated.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

	There are adequate breaks during working hours.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
--	-------------------------------------------------	--	--	--------------------------	--------------------------	--------------------------	--	--

PART 7 – HEALTH HAZARDS

Psychosocial Hazard	Check Guideline	Yes	No	Risk			Evidence sighted	Additional risk control measures required. Other comments
				L	M	H		
Injuries	Counselling services are offered for both physical and psychological injuries.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Psychological assessment is conducted before returning to work to ascertain whether the employee is fit to return to the workplace.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Secondary injuries are prevented through job task analysis.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Fatigue - Shifts - Rosters	Work schedules are analysed to ensure that employees work the same shift for each individual swing.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Employees' rosters are at least equal time offshore and onshore and factor in travel time to and from the facility.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
- Burnout/stress	Employees recognise the signs and symptoms of stress and burnout.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Identification of fatigue takes into account environmental, organisational and individual risk factors as well as the above.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Appendix 1.

SUGGESTED RISK CONTROL MEASURES

To assist with implementation of best practice, the following are some examples of risk control measures for identified psychosocial hazards in offshore working environments.

Psychosocial hazard	Example	Required action
Environmental conditions	Extremes of noise, temperature or vibration Poor air quality or lack of air conditioning Threats of natural disasters i.e. cyclones	Organisations should provide noise protection and spaces where employees are able to disengage from work Manage background noise such as radios and mobile phones Provide air-conditioned rooms and communal spaces
Biological	COVID-19	In pandemic situations, take extra measures to ensure employees feel that their job is secure Use labour hire staff for when team members are unable to complete a shift, roster or swing, or are in quarantine On return-to-work post infection recovery ease employees back into work, particularly where physically demanding work is involved Encourage disclosure if worker is not feeling well
Work organisation	Long hours	Ensure employees do not work over 12 hours per shift by ensuring a replacement worker is available to take over
	Shift work	Keep the same shift for the entirety of the swing (no shift rotations), taking into account individual preferences for types of shift (Day or Night).
	Job demands	Provide adequate time and resources to complete tasks by analysing work tasks and ensuring tolerable job demands. Tailor work to individual capabilities and skills Job or task demands are considered from both physical and psychosocial viewpoints.

	Physical workload	<p>Reallocate work to be distributed evenly between team members if heavy physical workload.</p> <p>During periods of high production and demand, monitor workload and make provisions for added support.</p> <p>Clearly communicate risk management policies for fatigue</p>
Management	Leadership/poor management style	<p>Demonstrate a commitment to a leadership style which fosters wellbeing in the workplace (consultative leaderships style).</p> <p>Ensure that the working environment is inclusive.</p> <p>Consult with employees when decisions affect the working environment or work processes.</p> <p>Commit to implementing procedures and policies which support the overall mental health of workers.</p> <p>Leaders receive training in identifying psychosocial hazards and workers who may require assistance or support.</p> <p>Employees are provided with full explanation on what to expect prior to employment and mobilisation offshore.</p>
	Workplace culture	<p>Encourage a workplace culture that is open, respectful and values equality.</p> <p>Ensure that managers and leaders model acceptable behaviours and show that unacceptable behaviours are not tolerated.</p> <p>Encourage open dialogue around mental health.</p> <p>Openly display information about mental health in the workplace, including communal areas.</p> <p>Incorporate mental health awareness training as a mandatory aspect of induction, training and career development.</p>
	Job clarity (lack of)	<p>Ensure position descriptions are up to date.</p> <p>Clearly communicate role objectives, responsibilities, and expectations.</p> <p>Give clear explanations as to how roles fit into the team and into the wider organisation</p>
	Job control (lack of)	<p>Involve employees in decision making processes.</p> <p>Allow employees to have control over the pace they work and order of tasks they are to complete.</p>

	<p>Bullying</p> <ul style="list-style-type: none"> - Verbal or physical abuse - Negatively influencing career options/holding people back 	<p>Conduct workplace observations to assist in the understanding of how employees interact with each other and also how managers and workers interact. Have process in place to identify bullying and risk factors for bullying. Refer to organisational codes of conduct. Offer opportunities for growth and development.</p>
	<p>Interpersonal relationships</p>	<p>Encourage an honest and open communication style in teams at all levels of the workplace. Promote a workplace culture that enables colleagues to trust and support each other to do their best.</p>
	<p>Workplace conflict</p>	<p>Implement leadership styles that incorporate conflict resolution skills Ensure that consequences for poor behaviours are communicated clearly to personnel Train managers and supervisors to identify conflict and seek resolution as early as possible Offer conflict resolution training to employees</p>
	<p>Perceived support</p>	<p>A one-on-one supervision or a “buddy system” is provided for new employees. Workers are consulted with regularly. Employees are made aware of the support available (i.e. EAPs, helplines, medics, HSRs) An inclusive environment is promoted.</p>
	<p>Risk management</p>	<p>There is a risk management system in place which approaches physical and psychosocial hazards in the same way. There is a system for determining trends in the workplace which identifies psychosocial hazards and their risk factors. A risk assessment is conducted where a risk has been identified, as appropriate risk control measures are implemented and are monitored regularly.</p>

	Address stigma	<p>Organisational processes are in place that ensure employees are not treated unfairly for having a mental illness.</p> <p>Leadership to communicate positive and accepting attitudes as an expectation in the workplace.</p> <p>Promote the use of mental health information literature.</p> <p>Provide staff with information on how to reduce stigma through knowledge, behaviour and attitudes.</p> <p>Provide a supportive and inclusive organisation culture.</p>
	Reporting and issue resolution procedures	<p>Encourage reporting of accidents and incidents.</p> <p>Organisational processes to be in place that ensure employees are not treated unfairly for reporting accidents, incidents, hazards or issues.</p> <p>Ensure reported issues are dealt with in a timely manner and relevant information is kept confidential.</p> <p>In the case of a conflict of interest, or when the issue involves senior management, an external investigator or body is engaged.</p> <p>Employer representative legally required to report all accidents, including near misses to relevant authority.</p> <p>For an issue about health and safety that arises in the workplace, all parties involved must meet to discuss the matter and attempt to resolve the issue. If the matter is not resolved once the parties have met, all parties must engage in an issue resolution procedure. Any of the involved parties may request that the regulator appoints an inspector to resolve the issue.</p>
	Response to workplace accidents and deaths	<p>Ensure that those who have witnessed a traumatic event have access to Employee Assistance Program.</p> <p>Provide full support to family, friends and colleagues, including counselling and full paid leave if required.</p>
	Inadequate training	<p>Ensure employees are adequately qualified for their role.</p> <p>Ensure a ‘buddy’ system is in place for new employees, so that they are able to shadow a more experienced worker.</p>

		Offer e-learning and micro-learning opportunities as well as face to face educational opportunities to develop required skills and to update skills when there are changes in work processes or work equipment.
	Poor return to work procedures	Establish a robust system of return-to-work strategies which include the evaluation of mental health as well as physical health. Analyse task demands and psychosocial risk factors to prevent secondary injuries. Provide supportive supervision.
	Casual work status. Employment uncertainty.	Permanency for casual workers means that a constant turnover of employees is not moving through the workplace. Allow employees who wish to convert from casual to permanent work status after completing the minimum required employment duration to do so. When working in a FIFO relationship all time spent at the workplace should be included, rather than counting each time the casual employee comes onto the rig as a new employment, and their fly lout time as not being employed. Casual contracts just short of a year should not be issued and then, after a short period a new contract commenced so that the worker can not be given permanent employments as the worker has not worked for more than 12 months for the same employer.
	Blacklisting	Cease the use of databases which use a 'blacklisting' system for employees who have spoken up about safety or other issues within the workplace.
	Fear of speaking up about problems	Ensure that workers are protected from reprisals for reporting events, incidents, risks or hazards by utilising Whistleblower protections – rules administered and enforced by Australian Securities & Investment Commission (ASIC).
	Management of change	Involve employees in discussions and decisions and provide the reasons for the change. Explain what the changes will be to employees, including outcomes and timeframes. Be upfront and open about any substantial readjustments resulting from the change(s).

		<p>Have an open-door policy for workers to discuss their concerns.</p> <p>Keep workers up to date with developments through emails or meetings.</p> <p>Provide support from supervisors during times of change.</p> <p>Make sure job descriptions reflect any new duties and responsibilities assigned following the change(s).</p>
	Reactive responses to poor mental health	<p>Utilise proactive interventions such as stigma reduction, employee surveys, job crafting, improvement of facilities, mental health interventions and resilience training.</p> <p>Provide opportunities for physical exercise and other stress-reducing strategies such as yoga and meditation.</p>
	Productivity expectations	<p>Productivity expectations should be realistic.</p> <p>Organisations should foster a work culture that explicitly values the quality of work rather than quantity alone.</p> <p>Look at rate of staff turnover in the organisation and examine reasons for leaving.</p>
	Pressure to extend roster	<p>Employ extra workers when production levels are high.</p> <p>Ensure that employees are not subject to additional pressures to extend roster when production is at a high level (<i>refer to sections in the General Protections Benchbook prepared by the Fair Work Commission, 2022 which aim to manage coercion and undue pressure</i>).</p>
	Lack of confidentiality	<p>Have a system in place for dealing with breaches of confidence.</p> <p>Investigate in a timely manner how and why confidentiality is being breached.</p>
	Low recognition or reward	<p>Ensure that supervisors give positive feedback to employees as appropriate.</p> <p>Utilise a reward system for workers who go ‘above and beyond’, or if the team has worked especially hard to meet production targets. Rewards can be informal, such as a thank you or well done, or formal, such as vouchers, shares, bonuses, prizes or incentives.</p> <p>Recognise both individual and team achievements.</p>

	Coercion	Afford offshore workers protection against pressure and coercion from management. Ensure protection for employees against coercion through utilising the legislation against <i>coercion</i> (section 343) and <i>undue influence or pressure</i> (section 344), as noted in the General Protections Benchbook (Fair Work Commission, 2022).
	Lack of opportunities/promotion	Offer opportunities for growth and development. Clearly exhibit the system for career and professional advancement.
	Unwillingness to disclose illnesses	Build trusting relationships between managers and workers . For mental illness, encourage the use of ‘pros and cons’ tool for disclosure or a ‘conversation planner’ such as those available through Heads Up: https://www.headsup.org.au/your-mental-health/talking-about-a-mental-health-condition-at-work/disclosure-tool
Situational	Work relationships	Promote team culture and the team as a source of support. Encourage differences in opinion as positive. Create a trusting culture, with open and honest communication. Provide group rewards, so that teamwork is recognised and reinforced. Provide conflict management training to employees as well as managers
	Fear of making a mistake	Reframe the discussion around making mistakes through open discussion and by encouraging the reporting of accidents and near-misses. Looking at the organisation as a whole when accidents or incidents occur will also help to prevent blame being apportioned to individuals. Assure and model to workers that their health and wellbeing is paramount, and that production is not above their safety.
	Involvement in workplace accident - reporting procedures	All accidents and near-misses should be reported in order for organisations to understand the patterns and precedents to accidents and near-miss accidents.

	- incident investigation	Incidents should be investigated in a timely manner. Incident reports such as hazards, risks and accidents should be reviewed to understand precursors to accidents such as fatigue or stress.
	Inadequate company-provided food and nutrition	Provide good quality food. Consult with employees in the process through group discussions or questionnaires. Allow employees more variety of foods.
	No privacy/solitude	Provide spaces for employees to retreat to for a period of time after a shift has ended that is free of auditory or visual stimuli.
	Living away from home in a remote location.	Ensure that workers can communicate with their families via video link without interruptions and in privacy.
	Poor internet	Provide adequate internet access to workers so that workers are able to call their families even at maximum usage and to be able to see the person or people they are talking to without interruptions.
	No social events or entertainment	Provide means of entertainment. Examples include movies, board games, card games, books, and social gatherings.
	Inadequate accommodation	Provide single accommodation. End the use of 'hot bedding.' Ensure accommodation is comfortable with respect to environmental factors.
	High pressure environment	Base production expectations on achievable targets. At peak production times, monitor employees for signs that the workload is manageable and adjust if necessary. Monitor workloads and employ additional staff if workload is not manageable. Ensure that workers have regular breaks, particularly in extreme heat.
	Travel time to and from facility	For those who have to travel for over a certain time (more than 12 hours) in order to reach the transport to the facility, provide extra leave to account for travel time. Ensure that employees who have long travel times do not start their shift immediately (for example, if they arrive in the morning, place them on night shift).

Interpersonal	<p>Gender Harassment</p> <ul style="list-style-type: none"> - Innuendo and jokes - Inappropriate comments <p>- Devaluing women's opinions</p>	<p>Ensure that implicit or explicit offensive or sexist jokes are not validated through silence, excuses or remaining silent.</p> <p>Clearly communicate which behaviours constitute sexual harassment.</p> <p>Clearly communicate responses to sexual harassment</p> <p>Enable employees to raise concerns regarding inappropriate behaviour in a safe manner by providing them with the appropriate tools and language.</p> <p>During meetings, ensure that there is a fair share of voices heard and that the opinions of all speakers are allowed and acknowledged.</p>
	Family factors	<p>Ensure that employees are flown home when a family emergency occurs.</p> <p>Provide workers with the ability to communicate with family via video link.</p> <p>Provide private spaces for workers to communicate with family.</p>
	Co-worker conflict	See workplace conflict resolution above under Management.
	Staff morale	<p>Ensure facilities are adequate and provide comfort, privacy and opportunities for physical exercise and socialisation.</p> <p>Provide good quality and varied food options.</p>
	Work-home interference	<p>Encourage effective coping techniques such as 'problem-focused' coping.</p> <p>Encourage help-seeking for stressors which affect the family</p> <p>Ensure fatigue levels are kept as low as possible, as fatigue and work-home interference can result in a reduction in alertness and focus.</p>
	Lack of work-life balance	Ensure at least equal time offshore and onshore.
	Difficulty with transition back into the home	<p>Encourage regular contact with family while offshore and provide the means to communicate with them.</p> <p>Keep regular routines regardless of presence or absence.</p> <p>Establish a routine to deal with the lead up to departure and arrival.</p> <p>Ensure fatigue levels are kept as low as possible, as tiredness exacerbates the emotions experienced during transitions between home and work and vice versa.</p>

	Living and working with others for long periods	<p>Encourage teamwork. Promote team culture and the team as a source of support Reward group efforts. Organise team building events as much as the environment allows. Ensure that employees who work closely together have separate accommodation.</p>
Personal	Coping	<p>Encourage early help-seeking for stress or inability to cope. Ensure that work demand is assessed regularly, in consultation with workers.</p>
	Help seeking behaviour.	<p>Encourage employees to seek help early for any concerns. Maintain an open communication style and ‘open door’ policy. Provide mental health training for employees. Encourage employees to discuss mental health in the same way they discuss physical health. Provide a peer support program. Utilise wellbeing checks once initial support is in place.</p>
	Risk perception	<p>Display a commitment towards safety. Identify bullying and risk factors for bullying. Ensure fatigue levels are kept as low as reasonably possible.</p>
	Trust in management	<p>Promote open and honest communication. Ensure that confidentiality is not breached. Promote an environment that show consistency with the principles of respect, dignity, and cooperation in the OH&S system.</p>
	Reduced productivity	<p>Limit the number of casual employees and give workers with casual status opportunity to convert to permanent work status. There is a system for determining trends absenteeism and presenteeism in the workplace. Ensure worker fatigue and burnout are as low as reasonably possible.</p>
	Situational perception	<p>Prevent fatigue and burnout. Minimise sleep loss and fatigue, particularly for those who work night shifts. Ensure cognitive demands are manageable.</p>

	Motivation	Involve employees in decision making about matters which affect their role and working environment. Encourage employees to achieve milestones and stay motivated and engaged.
	Inattention	Minimise sleep loss and fatigue, particularly for those who work night shifts. Ensure cognitive demands are manageable.
	Cognitive demands	During cognitively challenging tasks, provide further practical support. Reduce job demand, especially where there are competing tasks. Rotate monotonous or mundane tasks. Ensure adequate breaks during working.
Health	Injuries	For both physical injuries and psychological injuries, offer counselling services and conduct psychological assessment before returning to work. Aim to prevent secondary injuries through job task analysis.
	Fatigue - Shifts - Rosters - Sleep disturbances - Burnout/stress	Analyse work schedules. Employees should work the same shift for each individual swing. For example, workers should not workdays and then change to night shifts half-way through their time offshore Rosters should be at least equal time offshore and onshore. Organisations should also factor in travel time. Ensure that accommodation is as far away as possible from ongoing production noise. Provide employees with high-grade ear protection for sleep. Ensure that employees recognise the signs and symptoms of stress and burnout. Identification of fatigue takes into account environmental, organisational and individual risk factors as well as the above.

Appendix 2

CORRECTIVE ACTION PLAN

Psychosocial hazard	Risk control actions	Responsible person	Completion date	Review date

Acknowledgement. Some formatting and column headings have been sourced from the Department of Mines, Industry Regulation and Safety (2020) Mentally healthy workplaces audit tool – template, as this is a familiar audit format that the mining industry uses for auditing. All hazards and other information in this audit tool have been developed based on research results.

Appendix 3

MONTHLY REVIEW OF ACTIONS FOR IDENTIFIED PSYCHOSOCIAL HAZARDS

Psychosocial hazard	Risk control action taken	Risk control effectiveness reviewed by	Due Date	Date completed	Are further controls required? If so, what?	Residual risk if additional controls are implemented
		Name:				
		Name:				
		Name:				
		Name:				
		Name:				
		Name:				
		Name:				

References

- Australian Government. Federal Register of Legislation. (2019). *Corporations Act 2001* (Cth) [Online].
<https://www.legislation.gov.au/Details/C2019C00185>
- Australian Securities and Investment Commission. (2019). *Whistle blower rights and protections*. Information Sheet 238 (INFO 238).
<https://asic.gov.au/about-asic/asic-investigations-and-enforcement/whistleblowing/whistleblower-rights-and-protections/>
- Department of Mines, Industry Regulation and Safety. (2020). *Mentally healthy workplaces audit – technical guide*.
<https://www.commerce.wa.gov.au/publications/mentally-healthy-workplaces-audit-tool-and-technical-guide>
- Fair Work Commission. (2022). *General protections bench book*. <https://www.fwc.gov.au/benchbook/general-protections-benchbook>
- Heads Up. (n.d.). *Pros and cons tool*. <https://www.headsup.org.au/your-mental-health/talking-about-a-mental-health-condition-at-work/disclosure-tool>
- International Organization for Standardization. (2001). *Mechanical vibration — Measurement and evaluation of human exposure to hand-transmitted vibration — Part 2: Practical guidance for measurement at the workplace* (ISO Standard No. 5349-2:2001).
<https://www.iso.org/standard/27511.html>
- International Organization for Standardization. (2016). *Mechanical vibration — Measurement of vibration on ships — Part 5: Guidelines for measurement, evaluation and reporting of vibration with regard to habitability on passenger and merchant ships* (ISO Standard No. 20283-5:2016). <https://www.iso.org/standard/68125.html>
- National Offshore Petroleum Safety and Environmental Management Authority. (2021a). *Psychological risk management*.
<https://www.nopsema.gov.au/sites/default/files/documents/2021-09/A757599.pdf>
- Parliament of Western Australia (2006). *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGS Act) (Cth). [Online].
http://classic.austlii.edu.au/au/legis/cth/consol_act/opaggsa2006446/



Emma D'Antoine Presentation:

**Identifying Western Australian
Offshore Oil and Gas Workers
Mental Health Hazards and Risk
Control Measures**



Acknowledgements
I'd like to begin by acknowledging the Traditional Owners of the land on which we meet today, and pay my respects to Elders past, present and emerging.

2
This Photo by Unknown Author is licensed under CC BY

Contents of the presentation



Research aim and background



Methodology



Results



Conclusions and recommendations

Research Aim

To find the effects of psychosocial stressors on Australian offshore oil and gas workers through in-depth one-on-one interviews





Research Objectives

- **Communicate** with offshore oil and gas employees to identify perceived work-related mental health hazards and causes and assess systems of work, employer provided mental health education and support, and other strategies used in the offshore oil and gas industry to support employee mental health
- **Identify** health and safety hazards regarding poor mental health and its impacts on offshore installations
- **Develop** a Mentally Healthy Workplaces Audit for use within the offshore oil and gas industry to provide companies with an opportunity to implement and assess mentally healthy work systems, workplaces, supportive management, mental health education, stigma free reporting and control emerging mental health risks, thereby reducing the risk of any associated negative economic effects



The Research

Background



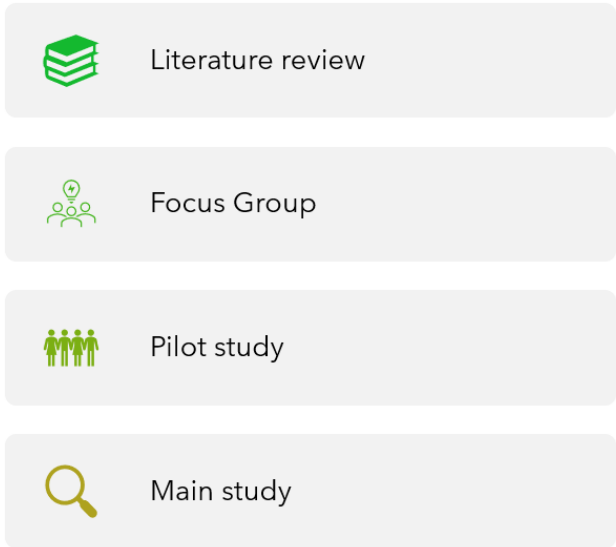
- + Poor mental health can increase **accidents** [1]
- + Unaddressed poor mental health affects workplace **attendance** and **productivity** [2]
- + **Anxiety** levels are significantly higher in offshore workers [3,4]
- + However, this population are much less likely to seek help for psychological **distress** [5]
- + Fatigue, isolation, regular absence from family and friends, close working proximity and long work hours all contribute towards **low levels of psychological wellbeing** [6]

Background



- + Workers with **psychological claims** feel less supported, experience lower levels of job satisfaction and have lower return-to-work rates when they feel that their employer has not responded positively [7]
- + Extended work rosters and perceived threat to job uncertainty due to **COVID-19** compounded psychological risk factors [8]
- + Psychological stressors in the oil and gas industry **cost organisations a significant amount** in lost production and compensation [9] [10] [11]
- + It is in **everyone's interests** to address workplace psychological risk factors [12]

Four-phased Approach



Methodology

- + Conducted a thorough literature review
- + Recruited the focus group members and developed interview questions
- + Organised and conducted interviews
- + Analysed qualitative data and wrote the research results
- + This study used an exploratory qualitative design ^[13]
- + The in-depth methods of qualitative research created the opportunity to provide new theories and models ^[14]
- + A phenomenological approach was used to ensure that lived experiences were heard ^[15]

Call for offshore study participants
Research aims to reduce psychosocial risks for offshore workers

Emma D'Antoine at Curtin University is conducting research on mental health in the offshore oil and gas industry and is looking for potential participants to take part in this study.

the underlying causes of issues that can cause poor mental health.

Research findings will also identify best practices that can be shared to provide opportunities to improve workers' mental health industry-wide.

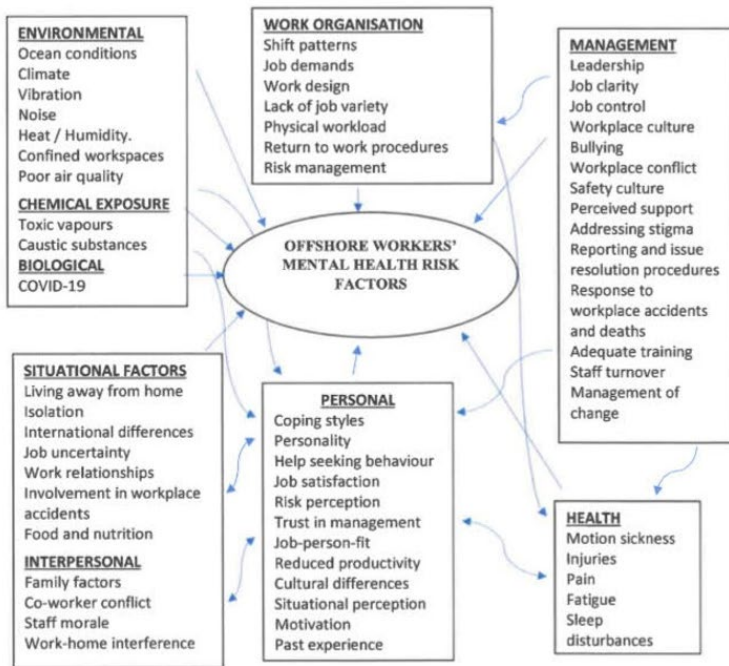
If you are an offshore oil and gas worker in Western Australia and are willing to take part in an online interview, please contact Emma at emma.dantoine@postgrad.curtin.edu.au or 0405 056424.

Interviews will be held through Microsoft Teams and it is anticipated that each interview will take between 15-45 minutes. The benefits of this research are that best practices in mental health management will be identified to share industry-wide and recommendations made where opportunities for improvements are identified.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number 2021-0012).

Emma is a PhD student of the Department of Petroleum Engineering and is being supervised by Dr Christopher Lagat, Associate Professor Janis Jansz, Associate Professor Ahmed Barifcani, Professor Mark Harris and Dr Sherrilyn Mills. The research, which has the support of NOPSEMA and the Maritime Union of Australia, is looking at multiple stressors that Australian oil and gas workers face when working offshore, including environmental, interpersonal, situational, personal factors, work organisation and work management. The study also looks at the impact of COVID-19 on psychosocial issues for the offshore workforce.

It is anticipated that the study results will be used to identify mental health hazards and implement risk control measures for the offshore oil and gas industry through interviews that aim to determine



Theory of mental health hazards for the offshore oil and gas industry workers developed from a review of the literature

11

Methodology- The Focus Group

3 offshore oil and gas industry employees

One of whom was a Contractor Worker

2 offshore oil and gas management staff

One of whom was a Contractor Manager

1 NOPSEMA representative

Who had knowledge of the health and safety laws in Australian offshore working environments

1 Department of Mines, Industry Regulation & Safety Representative who had knowledge of management of mental health issues in mining facilities

12

Data Analysis

Interpretive Phenomenological Analysis (IPA) [17] [18]

- Reading and re-reading transcripts
- Transcript checking
- Writing up results

Nvivo [19]

- Codes
- Themes
- Frequency lists
- Word Clouds
- Comparison with published literature

13

Focus Group Findings

Major themes which emerged:

- Rosters were affecting workers offshore (focus group conducted at the height of the COVID-19 pandemic).
- Longer hours and longer shifts resulted from the pandemic and last-minute changes and pressures to extend rosters and return early were particularly frustrating.
- Casualisation of the offshore oil and gas industry and lump-sum contracts put workers at risk of poor mental health, stress and uncertainty.
- Low levels of role clarity were contributing towards psychological distress
- Poor internet coverage impacted offshore workers and their communication with family.
- Fear of mistakes, injuries and reinjuries were common. Good mental health would lower the likelihood of making mistakes, leading to less need for supervision
- Often accidents happen due to perceived (and very real) pressures to getting the job done.

Focus Group Findings cont...

- Clear top-down messaging about mental health is vital.
- Stigma has been reduced through mental health literature and presentations, but there is sometimes still an "I'm OK, don't worry" attitude.
- Organisations should aim to select the right employees – some participants were pro-psychometric testing
- Strong employer-employee relationships are vital.
- Using Employee Assistance Programs (EAPs), having a psychologist or wellness coach on site, peer support, access to gyms and promotion of physical exercise are all useful approaches to achieve and maintain good mental health.
- Organisations should focus reducing stigma and on promoting self-awareness and understanding the source of stressors.
- One manager in the focus group felt there was a lack of resilience in some employees offshore today. Due to this, a question about resilience-building strategies was added for the pilot study.

Methodology- The pilot study and main study

Pilot study - 5 offshore oil and gas industry employees

- * Developed research skills
- * Provided validity and rigour
- * Tested the suitability of the interview questions

Main study

29 offshore oil and gas industry employees

16

Pilot study findings

- ❖ **Participants were asked fourteen questions which were formed from the focus group discussion**
- ❖ **The interview questions for the main study were amended to include new themes which emerged in the interviews in the pilot study.**
- ❖ **The results from the interviews showed that offshore oil and gas workers have multiple psychosocial hazards to deal with.**
- ❖ **Time away from family and the isolation of the offshore environment, poor communication facilities, cabin-sharing, heat and humidity were the main stressors referred to in the pilot study.**
- ❖ **No personal space or time to oneself results from 'a lack of real estate' as one participant described it.**

Main study findings

- ❖ **The main study had 19 questions. One of the main stressors for offshore oil and gas employees is the casualisation of their workforce**
 - **Casual workers who work offshore are being short-changed when it comes to their right to casual conversion**
 - **They are employed, terminated and re-employed so their organisation can avoid converting them to permanent employees**
 - **This process is unfair and avoids the employers' responsibility under the amendment to the Fair Work Act 2009 (Cth)**
 - **It causes stress, unpredictability and financial uncertainty**

Main study findings

Other findings:

- ❖ **Poor internet, poor accommodation and lack of facilities add to an already stressful working environment**
- ❖ **Fear of speaking up permeated across the workforce, especially for casual workers.**
- ❖ **Offshore workers have experienced micromanagement in their jobs**
- ❖ **Being away from home and work-home interference can cause poor focus and poor safety behaviours**
- ❖ **Female workers offshore experience harassment and unwanted attention**
- ❖ **Offshore workers appreciate their union**
- ❖ **Heat and heat stressors are well-managed**



Outcomes of research

- **New knowledge was generated through the collection of evidence which identified current areas of concern related to offshore oil and gas industry employees' mental health**
- **A mentally-healthy audit tool to promote positive mental health has been developed based on the identification of offshore oil and gas industry employees' mental health hazards and their risk control measures.**
- **Recommendations will be given to industry organisations and offshore representatives, such as NOPSEMA, the Maritime Union of WA and offshore energy companies.**

20

Dissemination of the research results and recommendations

Pub#	Description	Publications and research report sharing	Status
1	Research article. Effects of the COVID-19 pandemic on employees' psychological health in the offshore oil and gas industry and opportunities for improvement.	Journal article	Published
2	Research article. COVID-19 and offshore oil and gas workers: The role of personality.	Journal article	Published
3	Research article. Effects of Casualisation on Mental Wellbeing and Risk Management in the Offshore Oil and Gas Industry.	Journal article	Published
4	Research article. Psychosocial safety and health hazards and their impacts on offshore oil and gas installations.	Journal article	Published
5	Research article. A theoretical perspective of mental health hazards for offshore oil and gas workers.	Journal article	Under review
6	Submit a paper with research findings and recommendations to NOPSEMA to published & share with the Australian offshore oil and gas industry and for implementation of research recommendations. Details of findings will be provided to the Maritime Union of Australia (Western Australia branch).	Research report	Upcoming – late 2023
7	Research Report	Research report will be made publicly available through Curtin University Library e-space.	Upcoming - late 2023

Recommendations

- **Ensure and assure that employees who raise work-based issues or speak out about unsatisfactory behaviours or processes are not penalised in any way.**
- **Address direct and indirect harmful behaviours towards female employees, in line with current impactful research findings and recommendations, for example Champions of Change.**
- **End the use of shared accommodation, in particular 'hot bedding'. In the absence of providing single cabins, provide employees with the ability to withdraw to a private space, away from colleagues and with visual and auditory privacy.**
- **Allow employees with casual work status to transition to permanent work status if they wish. Ending contracts at just before 12 months to avoid their obligation to reforms in the Fair Work Act is both dishonest and unfair. The Act has since been updated to allow employees to apply for permanency after 6 months.**
- **The environment should also provide satisfactory means of communication to enable employees to contact family and friends onshore. Internet should be able to accommodate usage at maximum capacity at any time.**
- **Provide a better work-life balance, which would partly address the issue of what causes poor mental health offshore. Group activities, better exercise facilities and entertainment options such as movies, board games and television are some suggestions to improve mental health while offshore.**
- **Assure confidentiality when employees are accessing counselling services or mental health programs and implement a system of accountability where confidentiality is breached.**
- **Use proactive measures to get to the underlying cause of poor mental health rather than reactive measures.**
- **Provide varied, good-quality food.**
- **Make Mental Health 1st Aid course completion made compulsory.**
- **Provide information on how to build resilience, as well as practical guidance.**

Summary

- + **44** of the factors identified in the review of published literature were mental health hazards for offshore oil and gas workers in Australia.
- + A model of stressors was developed from the research results with **31** new mental health hazards recognised.
- + A Mentally Healthy Offshore Workplace Audit Tool, that includes suggested risk control measures, a mentally healthy offshore workplace Audit Guide for the offshore oil and gas sector, and a Self-report Checklist for Employees for offshore psychosocial hazards have been developed based on the research results and conclusions.
- + The Mentally Healthy Offshore Workplace Audit Tool and guide have been reviewed by the three study participants and by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) with changes made from their feedback to ensure that this tool is fit for purpose.

References

- [1] Hilton, M. F., Whiteford, H. A. (2010). Associations between psychological distress, workplace accidents, workplace failures and workplace successes. *Int Arch Occup Environ Health* 83, 923–933. doi: 10.1007/s00420-010-0555-x
- [2] James, C., Tynan, R., Roach, D., Leigh, L., Oldmeadow, C., Rahman, M., & Kelly, B. (2018). Correlates of psychological distress among workers in the mining industry in remote Australia: Evidence from a multi-site cross-sectional survey. *PLoS ONE*, 13(12): e0209377. doi:10.1371/journal.pone.0209377
- [3] Parkes, K. R. (1992). Mental health in the oil industry: A comparative study of onshore and offshore employees. *Psychological Medicine*, 22, 997-1009.
- [4] Parker, S., Fruhen, L., Burton, C., McQuade, S., Loveny, J., Griffin, M., Page, A., Chikritzhs, T., Crock, S., Jorritsma, K., & Esmond, J. (2018). *Impact of FIFO work arrangements on the mental health and wellbeing of FIFO workers*. Centre for Transformative Work Design. <https://www.mhc.wa.gov.au/media/2547/impact-of-fifo-work-arrangement-on-the-mental>
- [5] Bowers, J., Lo, J., Miller, P., Mawren, D. & Jones, B. (2018). Psychological distress in remote mining and construction workers in Australia. *Medical Journal of Australia*, 208(9), 391-397. <https://doi.org/10.5694/mja17.0095>
- [6] Langdon, R. R., Biggs, H. C., & Rowland, B. (2016). Australian fly-in, fly-out operations: Impacts on communities, safety, workers and their families. *Work*, 55(2), 413 – 427
- Becher (2016). *Psychosocial safety climate and better productivity in Australian workplaces: Costs, productivity, presenteeism, absenteeism*. <https://apo.org.au/node/70872>
- [7] Wyatt, M., & Lane, T. (2017). *Return to work: A comparison of psychological and physical injury claims. Analysis of the Return to Work Survey results*. Safe Work Australia. https://research.monash.edu/files/289621291/284492446_oa.pdf
- [8] The Chamber of Minerals & Energy of Western Australia (2021). *The WA resources sector: Navigating through COVID-19 and recovery*.
- [9] Productivity Commission (2020). *Mental Health*. Enquiry report. <https://www.pc.gov.au/inquiries/completed/mental-health/report>
- [10] Shaw-Mills, S. T. (2015). *Towards the Prevention of long-duration workers compensation claims- Pre-claim intervention and strategy* [Doctoral dissertation, Curtin University]. http://link.library.curtin.edu.au/p?cur_dspace_dc20.500.11937/172
- [11] Tompa, E., Mofidi, A., Heuvel, S., Bree, T. V., Michaelsen, F., Jung, Y., Porsch, L., & Emmerik, M. V. (2019). *The value of occupational safety and health and the societal costs of work-related injuries and diseases*. European Agency for Safety and Health at Work. <https://doi.org/10.2802/986314>
- [12] D'Antoine, E., Jansz, J., Barifcani, A., Shaw-Mills, S., Harris, M. & Lagat, C. (2022). Effects of the COVID-19 pandemic on employees' psychological health in the offshore oil and gas industry and opportunities for improvement. *World Safety Journal*. 31(2), 1-14. <https://doi.org/10.5281/zenodo.6790705>
- [13] Creswell, J. W., & Plano Clark, V. L. (2007). Choosing a mixed methods design. *Designing and conducting mixed methods research*, 2, 53-106
- [14] Henwood, K., & Pidgeon, N. (1995). Grounded theory and psychological research. *The Psychologist*, 8(3), 115–118.
- [15] Friesen, N. (2012). *Experiential evidence: I, we, you*. In N. Friesen, C. Henriksson, & T. Saevi (Eds.), *Hermeneutic phenomenology* (pp. 39–54). Rotterdam: Sense. https://doi.org/10.1007/978-94-6091-834-6_3
- [16] McLeod, P. J., Meagher, T. W., Steinert, Y. & Boudreau, D. (2000). Using focus groups to design a valid questionnaire, *Academic Medicine*, 75(6), 671
- [17] Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis: Theory, methods and research*. London: Sage.
- [18] Smith, J. A., & Osborn, M. (2008). *Interpretative phenomenological analysis*. In J. A. Smith (Ed.), *Qualitative psychology: A practical guide to research methods* (pp. 51–80). Sage Publications, Inc.
- [19] Sotiriadou, P., Brouwers, J., & Le, T. (2014). Choosing a qualitative data analysis tool: a comparison of NVivo and Leximancer. *Annals of Leisure Research*, 17(2), 218-234. doi: 10.1080/11745398.2014.902292



**Occupational Health Society of Australia
(WA Branch)**

Certificate of Appreciation

This Certificate is presented to

Emma D'Antoine

**in appreciation for presenting
“Identifying Western Australian Offshore Oil and Gas Workers
Mental Health Hazards and Risk Control Measures”**

Les Vogiatzakis

31st August 2023

President

Date