Curtin School of Nursing

Exploring the Impact of Organisational Values on Nurses' Resilience Levels: A Mixed Methods Study

Alannah Louise Cooper

0000-0002-4009-9792

This thesis is presented for the Degree of
Doctor of Philosophy
of
Curtin University

September 2021

Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgement has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

Human Ethics

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007) – updated 2018. The proposed research study received human research ethics approval from St John of God Health Care Human Research Ethics Committee, Approval Number 1182 and reciprocal human research ethics approval from Curtin University Human Research Ethics Committee, Approval Number HRE2017-0402.

Signed:

Alannah Cooper

Date: Monday 6th September 2021

Abstract

Introduction: Nurses are exposed to significant adversity in their work with potential negative consequences including burnout, depression, anxiety and, post-traumatic stress disorder. The role of resilience as a protective factor in nursing populations has begun to be explored with a focus on what enables some nurses to positively adapt in a challenging occupational environment. While this has been an important development that seeks to understand how negative psychological outcomes can be prevented, research to date has mainly focused on what individual nurses' can do to sustain their own resilience. There has been little investigation into how organisations and workplace conditions affect nurse resilience.

Aim: The aim of this study was to investigate the impact of organisational values on the resilience of nurses working in a values-based organisation.

Methods: Initially, a concept analysis was undertaken to explore the use of the concept of resilience in relation to nurses. A priori selected analysis framework was used to examine the concept of nurse resilience. An integrative review was then undertaken to critically examine research that has investigated nurse resilience and sought to understand what nurses' feel affects their resilience, their experiences, and how resilience (or a lack of) can impact individual nurses, patients, and employers. A mixed-methods design was then used to collect data in two phases, with a time-lapsed concurrent equal status design. In the first phase, nurses were invited to participate in a cross-sectional survey. Data were collected using the Connor-Davidson Resilience Scale, a measure of participants' resilience levels, and to test for

associations between resilience scores, and subscale scores with demographic and other variables, including knowledge of organisational values, value congruence, and personal characteristics. In the second phase qualitative data was collected via focus groups to explore nurses' perceptions and experiences of resilience, and to further explore the role the values of the organisation played in individual resilience. Results from the cross-sectional survey and focus groups were integrated with findings from the concept analysis and integrative review using a joint display.

Results: The concept analysis identified six key attributes of nurse resilience and arrived at a working definition. Drawing on the use of the concept, the definition reached described nurse resilience as a complex and dynamic process that varies over time and context and is influenced by both individual attributes and external resources. Twenty-seven studies met the inclusion criteria for the integrative review with a further four studies meeting criteria when the search timeframe was extended to January 2021. Key findings of the integrative review included: the association of high levels of resilience with reduced psychological harm and increased well-being; attempts to determine the characteristics of the resilient nurse were inconclusive; and there was minimal research exploring external factors which affect nurse resilience including work environment and conditions.

Phase One results from the mixed methods study indicated there were high levels of value congruence among participants and significant associations were found between resilience levels and agreement with organisational values (p=.022) and agreement about the importance of values (p=.018). Participants who held strong opinions around the organizational values tended to have the highest levels of resilience. Four main themes

were identified from the Phase Two data: Perceptions of Resilience, Pressures and Challenges, Supports and Strategies and, Impact of Organisational Values. The qualitative data revealed organisational values had the potential to be beneficial or harmful based on whether participants felt the values were upheld by the organisation or not. Findings from the concept analysis, integrative review, quantitative and qualitative data were integrated to provide a fuller understanding of the impact of organisational values on nurse resilience. This revealed the complexity of the relationship between the organisational values and nurse resilience; nurses needed to concur with the values and believe these were being demonstrated and upheld by their employer to achieve a positive impact.

Conclusion: The concept analysis and integrative review found both the literature discussing nurse resilience and research investigating nurse resilience has predominately focused on the individual. There has been a lack of research that has investigated how external factors affect nurse resilience. While there is evidence to support resilience is a protective factor, our understanding of how to promote nurse resilience is limited. Workplace factors require investigation to better understand nurse resilience and the factors which affect it.

This study found organisational values can influence nurse resilience. In particular, organisational values may positively impact resilience if nurses concur with those values and believe they are shared and demonstrated by their employer. There was a clear link between perceived failures by the organisation to provide optimal working conditions and participants feeling the values were not upheld. Therefore, to positively impact nurse resilience, organisations should consider developing, implementing, and operating with a set of

employee-adopted values, which need to be demonstrably upheld at every level within the organisation.

Acknowledgement of Traditional Owners

I respectfully acknowledge the Whadjuk Noongar people, the traditional owners, custodians and knowledge keepers of Whadjuk boodja, the land on which I have lived and worked, while undertaking this study. I pay my respects to their Elders past, present and emerging. I acknowledge the diversity of Australian Indigenous language groups and extend my respects to Aboriginal and Torres Strait Islander people reading this body of work.

Acknowledgements

I would like to thank the many people who have supported and encouraged me on my PhD journey. The irony of completing research about resilience whilst having my own resilience tested whilst completing a PhD was never lost on me. The support, encouragement and humour of my kind and patient supervisors Dr Janie Brown and Professor Gavin Leslie was vital on my journey.

I would like to sincerely thank my mentor and principal supervisor Dr Janie Brown, who encouraged me to undertake my PhD and has been with me at every step of the process encouraging, guiding, providing invaluable feedback and her expertise in the field of resilience.

I would also like to sincerely thank my associate supervisor Professor Gavin Leslie who provided encouragement, sound advice and guidance, and constructive feedback throughout.

I feel extraordinarily lucky to have worked with both of my supervisors and have learnt so much from them.

I would like to thank the Nursing Executive at St John of God Subiaco Hospital for allowing me to complete my research at the hospital and most importantly, the nurses who agreed to participate. Without the support of the hospital and the nurses that work, there this research would not have been possible.

I would also like to thank Professor Desley Hegney for her expertise and feedback critically reviewing my thesis, Professor Clare Rees who provided her psychological expertise as a co-author on the concept analysis and Dr Matthew Albrecht for his advice and guidance on statistical analysis.

Finally, I would like to acknowledge the support of my partner Rich, my family and friends, who for the last four and a half years have offered support, encouragement and have heard a lot about nurse resilience! In particular my partner has been with me every step of the way and has helped me to survive my PhD journey. My parents as health professionals have taken a keen interest and their enthusiasm and insightful thoughts on my research have been greatly appreciated.

Funding Source Acknowledgement: This research was supported by an Australian Government Research TrainingProgram (RTP) Scholarship

Publications and Presentations

Journal Publications:

Cooper, A.L., Brown, J.A., Rees, C. S. & Leslie, G. D. (2020). Nurse resilience: A concept analysis. *International Journal of Mental Health Nursing, 29*(4), 553-575. doi:10.1111/inm.12721

Cooper, A. L., Brown, J. A. & Leslie], G. D. (2021). Nurse resilience for clinical practice: An integrative review. *Journal of Advanced Nursing, 77*(6), 2623-2640. doi:10.1111/jan.14763

Cooper, A. L., Brown, J. A. & Leslie, G. D. (2021). The impact of organisational values on nurse resilience: A mixed methods study. *Journal of Nursing Management.* doi:10.1111/jonm.13338

Conference Presentations:

Cooper A. L., Brown, J. A. & Leslie, G. D (2019). *The impact of organisational values on nurse resilience*. Paper presented at the 4th Nursing and Midwifery Leadership Conference, Perth, Western Australia.

Cooper, A. L., Brown, J. A. & Leslie, G. L. (2018). *Do organisational values have the potential to affect individual resilience in nurses?* Paper presented at the 9th International Congress of Innovations in Nursing, Perth, Western Australia.

Symposia:

Cooper, A. L., Brown, J. A. & Leslie, G. D. (2019). *The impact of organisational values on nurse resilience*. Paper presented at St John of Subiaco 6th Nursing and Midwifery Symposium, Perth, Western Australia.

Cooper, A. L., Brown, J. A. & Leslie, G. D. (2018). *Do organisational values have the potential to affect individual resilience in nurses?* Paper presented at Mark Liveris Research Student Seminar, Perth, Western Australia.

Cooper, A. L., Leslie, G. D. & Brown, J. A. (2017). *Exploring resilience in Western Australian nurses working in a faith-based organisation: A mixed methods study*. Paper presented at St John of Subiaco 5th Nursing and Midwifery Symposium, Perth, Western Australia.

Awards:

Second prize for the best paper presentation award faculty of health sciences (2018), Mark Liveris Research Student Seminar, Perth, Western Australia.

Copyright Statement

I confirm that I have obtained, where necessary, 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 (e.g. publisher, co-author).

Statement of Contribution of Others

This thesis contains published work, all of which has been co-authored. The bibliographic details of the work, a description of the work and an estimated percentage of contribution (%) of each author is listed below (in order of publication):

Publication 1: Cooper, A.L. (70%), Brown, J. A. (15%), Rees, C. S. (5%), Leslie, G. D (10%).

Nurse resilience: A concept analysis.: **Cooper, A.L**., Brown, J.A., Rees, C. S. & Leslie, G. D. (2020). Nurse resilience: A concept analysis. *International Journal of Mental Health Nursing, 29*(4), 553-575. doi:10.1111/inm.12721

Alannah Cooper (the PhD candidate) contributed to the conception and design of the study, acquisition analysis and interpretation of data, drafted the manuscript, and gave final approval of the published work. Dr Janie Brown contributed to the conception and design of the study, analysis and interpretation of the data, critical review and revision of the manuscript for intellectual content, and gave final approval of the published work. Professor Gavin Leslie contributed to the conception and design of the study, interpretation of the data, critical review and revision of the manuscript for intellectual content, and gave final approval of the published work. Professor Clare Rees contributed to the interpretation of the data, critical review of the manuscript for intellectual content, and gave final approval of the published work.

Publication 2: Cooper, A.L. (70%), Brown, J. A. (20%), Leslie, G. D. (10%).

Nurse resilience for clinical practice: An integrative review: **Cooper, A. L.**, Brown, J. A. & Leslie, G. D. (2021). Nurse resilience for clinical practice: An integrative review. *Journal of Advanced Nursing, 77*(6), 2623-2640. doi:10.1111/jan.14763

Alannah Cooper (the PhD candidate) contributed to the conception and design of the study, acquisition, quality appraisal, analysis and interpretation of data, drafted the manuscript, and gave final approval of the published work. Dr Janie Brown contributed to the conception and design of the study, quality appraisal, analysis and interpretation of the data, critical review and revision of the manuscript for intellectual content, and gave final approval of the published work. Professor Gavin Leslie contributed to the conception and design of the study, interpretation of the data, critical review and revision of the manuscript for intellectual content, and gave final approval of the published work.

Publication 3: Cooper, A.L. (70%), Brown, J. A. (15%), Leslie, G. D. (15%)

The impact of organisational values on nurse resilience: A mixed methods study: **Cooper, A. L.**, Brown, J. A. & Leslie, G. D. (2021). The impact of organisational values on nurse resilience: A mixed methods study. *Journal of Nursing Management.* doi:10.1111/jonm.13338

Alannah Cooper (the PhD candidate) contributed to the conception and design of the study, acquisition analysis and interpretation of data, drafted the manuscript and gave final approval of the published work. Dr Janie Brown contributed to the conception and design of

the study, analysis and interpretation of the data, critical review and revision of the manuscript for intellectual content, and gave final approval of the published work. Professor Gavin Leslie contributed to the conception and design of the study, interpretation of the data, critical review and revision of the manuscript for intellectual, and content gave final approval of the published work.

I, as co-author, endorse that this level of contribution by the candidate indicated above is appropriate and confirm permission has been obtained to include the publications in this PhD thesis.

Dr Janie Brown, Principal Supervisor, co-author all three publications.

Signed: Date: Monday, 6 September 2021

Emeritus Professor Gavin Leslie, Co-Supervisor, co-author all three publications.

Signed: Date: Monday, 6 September 2021

Professor Clare Rees, co-author publication 'Nurse resilience: A concept analysis'.

Signed: Date: Monday 6th September 2021

Table of Contents

List of Figures

List of Tables

Glossary of Terms

The following terms are of relevance to this study:

Registered Nurse (RN): Defined by the Nursing and Midwifery Board of Australia (2016) as: *"*A person who has completed the prescribed education preparation, demonstrates competence to practice and is registered under the Health Practitioner Regulation Law as a registered nurse in Australia". For new registrants' completion of an accredited Bachelor of Nursing program (minimum three years duration) is required. Registered Nurses who qualified prior to 1993 may have trained in a hospital-based apprenticeship style system with training typically lasting three or more years and may have not subsequently completed any university-based nursing studies.

Enrolled Nurse (EN): Defined by the Nursing and Midwifery Board of Australia (2016) as:

> "a person who provides nursing care under the direct or indirect supervision of a registered nurse. They have completed the prescribed education preparation, and demonstrate competence to practice under the Health Practitioner Regulation National Law as an enrolled nurse in Australia. Enrolled nurses are accountable for their own practice and remain responsible to a registered nurse for the delegated care".

For new registrants' completion of an accredited two-year Diploma of Nursing program is required. Enrolled Nurses who qualified earlier may have trained in a hospital-based apprenticeship style system with training typically lasting one or two years and may have not subsequently completed any further nursing studies

Dual Registered Nurse/Midwife (RN/RM): An individual who has undergone and completed studies in accredited programs for both nursing and midwifery and is registered under the Health Practitioner Regulation Law to practice in Australia for both professions.

Chapter 1. Introduction

1.1 Background

Recent estimates indicate there is currently a shortfall of 5.9 million nurses globally (World Health Organisation, 2020). Although now more than seven years old, a Health Workforce Australia (Health Workforce Australia, 2014) report estimated there will be a shortfall of almost 123,000 nurses in Australia by 2030. An ageing workforce, with many current nurses approaching retirement, is a key component of these predicted shortages in Australia (Goodare, 2017; Graham & Duffield, 2010; Health Workforce Australia, 2014). This exodus coupled with difficulties in retaining novice nurses, presents serious challenges to the delivery of healthcare (Chung & Fitzsimons, 2013; Hoeve et al., 2020). Nursing has always been a high stress profession, significant stressors traditionally encountered by nurses in their work include shift work, poor skill mixes, dealing with the emotional needs of patients, and death and dying (Happell et al., 2013). The demands faced by nurses are increasing due to inadequate staffing, increasing patient acuity, high patient turnover and, an ageing population (Cope et al., 2016a).

These significant stressors have been further compounded in the context of a pandemic. While the research for this thesis was conducted prior to the Coronavirus disease (COVID-19) pandemic, it is important to consider the current context as the nursing profession is further challenged (Maben & Bridges, 2020). Coronavirus disease has added to the burden faced by nurses and longstanding issues in healthcare that preceded the pandemic have merged, with nurses and other health professionals facing unprecedented adversity (Arnetz et al., 2020; Maben & Bridges, 2020). The long-term impact of the pandemic on nurse wellbeing,

retention, and recruitment is unknown but could potentially worsen existing and predicted global shortages.

Given the substantial stresses nurses are exposed to, there has been a focus in the literature on how these factors impact nurses. Traditionally this focus has been on the negative psychological outcomes nurses are at risk of, including burnout, depression, anxiety, and secondary traumatic stress (Hegney, Rees, et al., 2015). Internationally, high levels of burnout and other stress-related conditions in nurses have been consistently reported in the literature (Craigie et al., 2015; Hegney et al., 2014; Khamisa et al., 2013; Ray et al., 2013). These conditions can lead to poor performance and even cause nurses to exit the profession (Simon, Müller, & Hasselhorn, 2010). In a review of the literature, Alderson et al. (2015) found a high prevalence of suicide amongst nurses and clear evidence that their profession or work environment exposed them to a high suicide risk.

Conversely, despite the very real challenges and stresses experienced by nurses some individuals are able to positively cope and even survive and thrive in this demanding environment. Resilience is the term widely used to explain this ability to deal with stressful environments (Zander et al., 2013). In recent years there has been much discussion around the concept of resilience in nursing however there is no widely agreed definition (Aburn et al., 2016). Despite the lack of a universally agreed definition of resilience, common themes in the literature have been identified as "… rising above to overcome adversity, adaptation and adjustment, 'ordinary magic', good mental health as a proxy for resilience, and the ability to bounce back" (Aburn et al., 2016 p.984).

Personal qualities associated with resilience have been identified in psychological research including optimism, faith, the ability to engage the support of others, the belief that stress can be strengthening, and striving towards personal goals (Charney, 2004; Hoge et al., 2007; Luthar et al., 2000). Although these personal qualities may be greater in some individuals it is believed that resilience can be learnt and promoted, a view shared both in the discipline of psychology, where resilience research began, and more recently in nursing research (Pipe et al., 2012; Waugh & Koster, 2014). Individual resilience interplays and is influenced by a number of factors including compassion fatigue, compassion satisfaction, anxiety, depression, and stress (Rees et al., 2015). Resilience is a measurable construct and the most commonly used measure of resilience in the nursing literature is the Connor-Davidson Resilience Scale (CD-RISC) (Connor & Davidson, 2003). The CD-RISC draws on research conducted in the field of psychology and considers resilience to be a multidimensional characteristic, which is variable based on a number of factors including context, time, age, and the different life circumstances an individual is subject to (Connor & Davidson, 2003).

This growing knowledge and understanding of resilience, coupled with the increasing pressures and demands being placed on the nursing profession, has led nurse researchers to report not only the negative impacts working as a nurse can have but to also explore protective factors such as resilience. Understanding how to protect nurses and maintain resilience has become increasingly urgent in the context of the COVID-19 pandemic. Prior to the pandemic, some studies included interventions with a focus on mindfulness and self-care which aimed to build nurse resilience (Craigie et al., 2016; Foureur et al., 2013; McDonald et al., 2013; McDonald et al., 2012; Slatyer, Craigie, Heritage, et al., 2018; Slatyer, Craigie, Rees, et al., 2018). Most of the research to date has been conducted in Australia

and the United States and often focuses on high intensity specialities such as emergency (ED), intensive care ICU), and oncology (Flarity et al., 2013; Gillman et al., 2015; Mealer et al., 2012a; Pipe et al., 2012; Potter et al., 2010; Tubbert, 2016; Wachs et al., 2016; Zander et al., 2013).

Internationally, there is evidence resilience could be a protective factor associated with reduced prevalence of burnout (Mealer et al., 2012a), post-traumatic stress disorder (Cho & Kang, 2017; Hsieh et al., 2016; Mealer et al., 2012a), emotional exhaustion (Manzano García & Ayala Calvo, 2012), and symptoms of anxiety and depression (Mealer et al., 2012a). Resilience in the context of the Australian nursing population has begun to be explored by examining nurses understanding of resilience as a phenomenon, the factors they feel influence resilience, and the relationship between psychological outcomes and resilience, (Cope et al., 2016a; Drury et al., 2014; Hegney et al., 2014; Hegney, Rees, et al., 2015; Zander et al., 2013). Similar to international studies, Hegney et al., (2015) found higher levels of resilience were associated with lower levels of anxiety, depression, stress, and burnout in a sample of Queensland nurses and nursing assistants. Both international and local research supports the concept of resilience as a protective factor against negative psychological outcomes. If we can learn how and why some nurses are able to prosper despite the stresses of the profession, we can potentially find ways to develop and maintain this attribute in all nurses.

It is also important to consider factors beyond the individual and their personal attributes when exploring resilience in a professional group such as nurses. We need to consider how their work might affect their resilience. There is evidence that factors beyond the control of

the individual impact on nurse wellbeing including working conditions and organisational culture (Taylor, 2019). The current focus on the individual has been identified as incomplete and potentially damaging to the nursing profession (Taylor, 2019; Traynor, 2017; Virkstis et al., 2018). This focus fails to address working conditions that contribute to burnout and labels the inability to cope as a personal failure without acknowledging the impact of conditions nurses endure in the workplace (Taylor, 2019). The context in which nurses work and organisational factors which can promote and diminish resilience needs to be explored, to better inform resilience interventions and consider the responsibilities of employers. This includes consideration of how workplace conditions affect nurse resilience.

The importance of organisational values are widely recognised and employers aim for their employees to share and commit to these values (Edwards & Cable, 2009; Hyde & Williamson, 2000). There is evidence that there is a direct correlation between employee satisfaction and value congruence (the extent to which an individual's values match the values of the organisation they work for) (Hyde & Williamson, 2000; Ren & Hamann, 2015; Verplanken, 2004). It has been demonstrated that individuals tend to be attracted to organisations with values that fit their own (Ren & Hamann, 2015). Individuals with a shared professional identity such as nurses, tend to have agreed norms and values (Dimaggio & Powell, 1983; Fitzgerald, 2020; Larson, 1977).

Value congruence is key to achieving positive outcomes for both parties including employee engagement, job satisfaction, and reduced stress levels (Edwards & Cable, 2009; Fiabane et al., 2013; Hyde & Williamson, 2000; Ren & Hamann, 2015; Verplanken, 2004). There is also evidence that value congruence positively affects psychological wellbeing in health

professionals (Fiabane et al., 2013; Graham et al., 2016; Leiter et al., 2009). A study of nurses found participants who felt human relations values prevailed held more positive attitudes to their place of work and had higher levels of job satisfaction (Verplanken, 2004). Similarly, in a large study of hospital employees, organisations that valued their employees provided better patient service than less supportive organisations (Gregory et al., 2009).

When value incongruence occurs the values of an organisation are likely to impact negatively on employees with lower levels of job satisfaction, increased stress, and higher staff turnover (Hyde & Williamson, 2000; Panahi et al., 2016). A study of ICU nurses and doctors found value incongruence exacerbated moral distress which could cause depressive symptoms (Lamiani et al., 2017). The combination of value incongruence and the experience of moral distress through first-hand experience of erosion of ethical integrity in everyday practice can place clinicians at risk (Lamiani et al., 2017). Other studies in health and allied health professionals have found value incongruence contributed to burnout (Leiter et al., 2009) and other forms of psychological stress including anxiety, stress, and secondary traumatic stress (Graham et al., 2016).

It is important to recognise that value congruence can vary over time and that value incongruence may arise due to individual development, conflicts, or changes in the organisation (Verplanken, 2004). As an example, in the case of the Bundaberg Hospital inquiry (Davies, 2005) even though there was a high level of congruence between individual staff values and the espoused values of the organisation, an unhealthy and damaging culture existed (Casali & Day, 2010). This was because of a disconnect between the individual values and espoused organisational values, compared to the practice of

managerial decision makers which did not reflect these shared values (Casali & Day, 2010). Stark contrasts in the hospital values such as friendship, honesty, care, and compassion and the organisational culture which promoted bullying and harassment uncovered in the inquiry "can be seen as a direct failure to promote the organisational values and a failure to fulfil a duty of care" (Casali & Day, 2010, p. 76). Organisational values have been shown to have the potential to influence job satisfaction, stress levels, and employee engagement but no study had considered the influence an organisation's values could have on nurse resilience. To gain a more complete understanding of nurse resilience it is essential to investigate factors beyond the individual. The impact organisations have on nurse resilience is currently unknown; this study will begin to address this gap by investigating the impact of organisational values on nurse resilience.

1.2 Aim and Objectives

This study aimed to investigate the impact of organisational values on the resilience of nurses working in a value-based organisation. The objectives of the study were to:

1. Develop a working definition of nurse resilience from the available literature
2. Critically appraise and evaluate research investigating nurse resilience
3. Determine resilience levels in the study population and test for associations between resilience scores, subscales, and variables including knowledge of organisational values, value congruence, and personal characteristics
4. Examine the concept of resilience specific to nurses employed in a value-based organisation
5. Explore the role the values of the organisation play in individual resilience

6. Triangulate and integrate findings from the concept analysis, literature review, quantitative and qualitative data to determine the relationship between organisational values and nurse resilience

1.3 Significance

The application of organisational values in healthcare is widespread (Afsar et al., 2018). Nursing shortages and recruiting and retaining nurses are global issues compounded by an ageing patient population, an ageing nursing workforce, higher patient acuity and complexity, and more recently a pandemic. To protect, retain and recruit nurses, ways to promote their resilience and prevent negative psychological outcomes, which contribute to individuals exiting the profession, must be found. While there is evidence organisational factors have the potential to improve adjustment to psychological stressors there is a lack of research exploring how organisational values impact resilience levels in employees. This study furthers the knowledge and understanding of nurse resilience and any relationship with organisational values, which will assist in determining how contextual factors affect nurse resilience. This knowledge can be used to develop more complete interventions which include modifications to work and organisational environments to promote nurse resilience.

1.4 Thesis Structure

This thesis consists of seven chapters. Three of these chapters include manuscripts that have been accepted for publication in international peer-reviewed journals. The presentation of each manuscript complies with each journal's copyright policy.

Chapter 1, presents an overview of the study conducted and provides the background and context, aim, scope, and significance.

Chapter 2, presents a concept analysis of nurse resilience. The manuscript was published in the *International Journal of Mental Health Nursing*.

Cooper, A. L., Brown, J. A., Rees, C. S., & Leslie, G. D. (2020). Nurse resilience: A concept analysis. *International Journal of Mental Health Nursing*. doi:10.1111/inm.12721

The manuscript culminates in a working definition of nurse resilience. A specific definition of nurse resilience was missing from the literature (Aburn et al., 2016). Establishing a consistent definition can guide future research and practice. The definition arrived at through the concept analysis provides the nursing profession with a working definition and sets the scene for the thesis.

Chapter 3, evaluates and synthesises research that has investigated nurse resilience using an integrative review process. This manuscript was published in the *Journal of Advanced Nursing*.

Cooper, A. L., Brown, J. A., & Leslie, G. D. (2021). Nurse resilience for clinical practice: An integrative review. *Journal of Advanced Nursing*. doi:10.1111/jan.14763

Through the process of the integrative review, research investigating nurse resilience was critically appraised and areas for further research are identified. Results of supplementary searches to update the integrative review for the thesis are presented at the end of the chapter. The review found studies investigating nurse resilience have predominately

focused on the individual and that external factors affecting nurse resilience have been under-researched.

Chapter 4, details the research design utilised in this study. The mixed method design used for the study is discussed and justification for the research methodology is provided.

Chapter 5, presents the results obtained in the quantitative and qualitative phases of the study. The integration of the two phases of the study in the context of the wider literature is presented in a joint display.

Chapter 6, integrates quantitative results and qualitative findings which address the study aim. This manuscript was published in the *Journal of Nursing Management*.

Cooper, A. L., Brown, J. A., & Leslie, G. D. (2021). The impact of organisational values on nurse resilience: A mixed methods study. *Journal of Nursing Management*. doi.org/10.1111/jonm.13338

Chapter 7, discusses and further integrates the findings of the study and in particular the relationship between the quantitative and qualitative results. The findings of this study are discussed in the context of the concept analysis and relevant literature presented in Chapters Two and Three. Limitations of the study are presented and recommendations for nursing practice and further research are provided, followed by conclusions.

Chapter 2. Nurse Resilience: A Concept Analysis

2.1 Introduction

This chapter consists of a copy of the manuscript that was published in the *International Journal of Mental Health Nursing* (Cooper et al., 2020). This manuscript presents a concept analysis of nurse resilience and addresses the first objective of this study (to develop a working definition of nurse resilience from the available literature). Due to a lack of clarity around the use of the term "resilience" in relation to nurses, it was necessary to provide a working definition before undertaking a critical review of the literature and data collection. The concept analysis utilises Walker and Avant's (2011) process which is the most widely applied model in the nursing literature (Fitzpatrick & McCarthy, 2016). Concept analysis considers all uses of a concept within the discipline and also the wider literature. It is not limited to peer-reviewed publications and does not require a critique of methodological quality but instead an examination of how the selected concept is broadly used. The aim of the concept analysis was to inform a working definition of nurse resilience. The use of a consistent definition of resilience is important to guide future research efforts in the area. By knowing the key markers of nurse resilience, studies can be designed that focus specifically on the measurement of these variables.

Reference:

Cooper, A. L., Brown, J. A., Rees, C. S., & Leslie, G. D. (2020). Nurse resilience: A concept analysis. *International Journal of Mental Health Nursing*. doi:10.1111/inm.12721

2.2 Concept Analysis

In keeping with the journal's copyright rules, the accepted version of the manuscript is presented below. Supplementary materials relating to the manuscript are included at the end of this chapter.

Nurse Resilience: A Concept Analysis

Abstract
Nurse resilience is attracting increasing attention in research and practice. Possession of a high level of resilience is cited as being crucial for nurses to succeed professionally and manage workplace stressors. There is no agreed definition of nurse resilience. A concept analysis was undertaken to examine nurse resilience using a priori selected analysis framework. This concept analysis aims to systematically analyse resilience as it relates to nurses and establish a working definition of nurse resilience. Sixty-nine papers met the search criteria for inclusion. Key attributes of nurse resilience were social support, self-efficacy, work-life balance/self-care, humour, optimism and being realistic. Resilience enables nurses to positively adapt to stressors and adversity. It is a complex and dynamic process which varies over time and context and embodies both individual attributes and external resources. Sustaining nurse resilience requires action and engagement from both individuals and organisations.

Keywords: Resilience; nurses; concept analysis; definition; adversity

Introduction
The stressful nature of nursing work places nurses at increased risk of burnout, depression, anxiety, secondary traumatic stress (STS) and suicide (Alderson et al., 2015; Craigie et al., 2015; Hegney et al., 2014; Khamisa et al., 2013; Ray et al., 2013). Like other health professionals and emergency personnel, nurses are exposed to a wide variety of stressors including trauma, shift work, workplace violence and insufficient resources (Happell et al., 2013; Hsieh et al., 2016; Mealer et al., 2017; Zander et al., 2013). Specifically, in a mental health context, nurses are exposed to unique stressors including witnessing patients inflict self-harm and caring for patients who may attempt and complete suicide (Hagen et al., 2017; Tofthagen et al., 2014). A recent study found the emotional labour of suppressing emotions during interactions with patients negatively affected the resilience of mental health nurses (Delgado, Roche, Fethney, & Foster, 2020).

Moral distress can contribute to burnout and is when an individual is unable to act according to their core values due to internal and external restraints (Fumis et al., 2017; Rushton et al., 2015; Wagner, 2015). The nature of a nurses' role, involves providing continuous care and forming close relationships with patients and families, placing them at increased risk of compassion fatigue (CF) and burnout (Boyle, 2011; Jarrad et al., 2018). Protective factors which enable nurses to positively adapt in stressful work situations have been reported. Personal resilience has been identified as a key protective attribute in dealing with these circumstances (Cusack et al., 2016; Gillespie et al., 2009; Manzano García & Ayala Calvo, 2012; Mealer et al., 2012a; Rushton et al., 2015). Maintenance of psychological wellbeing and mental health are common outcome indicators of a resilient process following adverse events (Foster et al., 2020; Gao et al., 2017; Itzhaki et al., 2015).

The origins of research in resilience stem from psychology, initially in children (Garmezy et al., 1984; Werner & Smith, 1982), then in groups including; adults (Connor & Davidson, 2003; Liu et al., 2015), veterans (Elbogen et al., 2012; Pietrzak et al., 2014), patients with chronic illness (Guest et al., 2015; Tan-Kristanto & Kiropoulos, 2015) and trauma victims (Anderson et al., 2012; Daniels et al., 2012). Most people are exposed to one or more life-threatening experiences (Southwick et al., 2014) as well as regular stressors throughout their lifetime (Fletcher & Sarkar, 2013; Southwick et al., 2014). Understanding what facilitates resilience and positive adaptation may play an important role in improving mental health for people across many contexts.

Resilience has been defined as a trait, a process and an outcome (Fletcher & Sarkar, 2013). When considered as a personality trait, resilience is fixed and stable over time whereas, when viewed as a dynamic process resilience can develop throughout life and vary across context and time (Atkinson et al., 2009). Defining resilience as a trait originates in psychology when identifying the characteristics of resilient individuals was a focus (Fletcher & Sarkar, 2013; O'Dougherty-Wright et al., 2013). Consideration of the more complex nature of resilience gave rise to the view of a dynamic process where adaptive systems beyond individual characteristics interplay and affect individual resilience including biological, social and cultural processes (O'Dougherty-Wright et al., 2013). Definitions based on possessing a high level of resilience focus on positive adaptation and successful coping (Fletcher & Sarkar, 2013). Regardless of perspective, most definitions centre around adversity and positive adaptation (Fletcher & Sarkar, 2013). Adversity is an unpleasant or difficult situation (English Oxford Dictionary, 2018). Positive adaptation is '…the processes by which individuals' attain overall patterns of adjustment that represent unusually favourable developmental trajectories, given their background and available resources' (Mahoney & Bergman, 2002, p. 197).

Due to variations in any concept's utilisation across disciplines and contexts, clarity is required when employing a concept in nursing research (Baldwin, 2008; Foley & Davis, 2017; Walker & Avant, 2011). Concept analysis (CA) is utilised to inform a precise definition and provide mutual understanding (Foley & Davis, 2017).

Design

Concept Analysis is a precise and rigorous process, pioneered by the philosopher Wilson (1963), with the methodology spreading across disciplines. In nursing CA emerged in models developed by Rodgers and Knafl (1993), Walker and Avant (1995), Morse (1995) and Chinn and Kramer (1995). Walker and Avant's (1995) model is the most widely applied in the literature (Fitzpatrick & McCarthy, 2016) and has been further updated and refined. Their approach uses an eight-step process (Table 1) to guide a deeper understanding of a concept. These steps are *iterative* rather than *sequential* (Walker & Avant, 2011). Using Walker and Avant's method, an analysis of the critical attributes of resilience related to nurses is presented. The antecedents and consequences are described and model, borderline and contrary cases define the concept.

Table 1. Adaptation of Walker and Avant (2011) steps of concept analysis

Steps of Concept Analysis	Description
Select a concept	Concept selection for analysis
Determine the aims or purposes of analysis	Focus on the purpose and intention of performing the CA
Identify all uses of the concept you can discover	'…. Identify as many uses of the concept as you can find' (Walker & Avant, 2011, p.161)
Determine the defining attributes	Establish the cluster of attributes most frequently associated with the concept
Identify a model case	'…an example of the use of the concept that demonstrates all the defining attributes of the concept'. (Walker & Avant, 2011, p.163)
Identify additional cases	Used to illustrate what the concept is and is not. Borderline, related and contrary cases are frequently used invented and illegitimate cases are not always required.
Identify antecedents and consequences	Antecedents are '…events or incidents that must occur or be in place prior to the occurrence of the concept. Consequences are '…events or incidents that occur as a result of occurrence of the concept'. (Walker & Avant, 2011, p.167)
Define empirical referents	'…classes or categories of actual phenomena that by their existence or presence demonstrate the occurrence of the concept'. (Walker & Avant, 2011, p.168)

Aim

Concept and Purpose

Whilst resilience is increasingly being referred to and explored in the nursing literature, there is no clear definition of what resilience means for nurses (Aburn et al., 2016). The aim of this CA is to inform a working definition of nurse resilience. An important potential implication of this study is that use of a consistent definition of resilience could guide future research efforts in the area. By knowing the key markers of nurse resilience, studies can be designed that focus specifically on the measurement of these variables.

Definitions and Uses of the Concept

In order to fully understand resilience, all uses must be considered including exploring literature outside of the discipline to avoid bias (Walker & Avant, 2011).

Primary Definitions

The origin of the term resilience is in the Latin word *resilire* meaning to 'spring back' (Online Etymology Dictionary, 2017). The English Oxford Dictionary (2017) defines resilience as 'the capacity to recover quickly from difficulties; toughness' or 'the ability of a substance or object to spring back into shape; elasticity'. Synonyms include flexibility, strength, pliability, buoyancy, toughness and hardiness and antonyms include rigidity, fragility, vulnerability and weakness (English Oxford Dictionary, 2017).

In science resilience refers to how easily a material returns to its original shape after elastic deformation (Gorse et al., 2012) or the rate that a system regains structure and function following stress or perturbation (Park & Allaby, 2017). In sport resilience is a measure of a

body's resistance to deformation (Kent, 2006). In social ecology resilience is the capacity of a system to absorb or withstand disturbances and reorganise while undergoing change yet retain the same structure, function and identity (Walker et al., 2004).

Resilience in Psychology

In children research focused on how, when faced with significant adversities such as having a mother with schizophrenia (Garmezy & Streitman, 1974), socioeconomic disadvantage (Garmezy, 1991; Werner & Smith, 1982), maltreatment (Cicchetti et al., 1993; Moran & Eckenrode, 1992), chronic illness (Wells & Schwebel, 1987) or catastrophic life events (O'Dougherty-Wright et al., 1997) some were able to positively adapt and thrive. Studies focused on identifying characteristics or attributes resilient individuals possess (Garmezy, 1991; Kobasa et al., 1982; Rutter, 1987; Werner, 1982; Werner & Smith, 1982). Examples include a supportive environment, hardiness, good self-esteem and an easy temperament. These protective factors, are considered to foster positive outcomes in children exposed to adversity (Bonanno, 2004). A number of definitions have been offered for resilience in children including; '…the positive pole of individual differences in people's response to stress and adversity' (Rutter, 1987, p. 316) and '…a dynamic process encompassing positive adaptation within the context of significant adversity' (Luthar et al., 2000, p. 543).

The study of resilience moved beyond developmental and social-psychological studies when post-traumatic stress disorder (PTSD) as a diagnostic entity arose in 1980 (Agaibi & Wilson, 2005). Research focused on adults, examining responses to trauma and the development of PTSD. Psychologists sought to establish factors associated with vulnerability and resilience to PTSD (Agaibi & Wilson, 2005; Zuckerman, 1999). Studies focused on groups exposed to extreme trauma including; war veterans (Bartone, 1999; Hendin & Haas, 1984), prisoners of war (Gold et al., 2000; Kluznik et al., 1986) and holocaust survivors (Cohen et al., 2002; Kahana et al., 1988). In the context of acute trauma, resilient individuals are those that do not develop PTSD (Hoge et al., 2007). Definitions of resilience in adults include; 'Resilience embodies the personal qualities that enable one to thrive in the face of adversity' (Connor & Davidson, 2003, p. 76) and '… resilience reflects the ability to maintain a stable equilibrium' (Bonanno, 2004, p. 20). Despite the risk of psychopathology following trauma most people positively adapt and display resilience (Bonanno, 2004). This acknowledgement of the commonality of resilience stimulated a move away from focusing on psychopathology and towards a positive paradigm (Pan & Chan, 2007). The presence of resilience in individuals frequently exposed to adversity and how to foster and maintain this has become an area of particular interest.

A number of professionals including firefighters (Carpenter et al., 2015; Kimbrel et al., 2011; Meyer et al., 2012), police officers (Gershon et al., 2009; Martinussen et al., 2007), air traffic controllers (Jou et al., 2013; Maier, 2011; Martinussen & Richardsen, 2006) and health professionals (Felton, 1998; Koinis et al., 2015; Mealer et al., 2012a) are subjected to extreme levels of stress, adversity and trauma at work which can result in negative psychological outcomes. The need to support individuals working in such areas is recognised and resilience has been identified as a key protective factor (Galatzer-levy et al., 2013; Lee et al., 2014; Papazoglou & Andersen, 2014). Drawing on definitions offered in psychology in their study of firefighters Lee et al., (2014, p. 129) state; 'Resilience can be defined as the ability to adapt and successfully cope with acute or chronic adversity'. Galatzer-levy et al., (2013, p. 545) cite the work of Bonanno (2004) identifying resilience as commonplace in police officers facing frequent exposure to potentially traumatic events; '… with the largest group being asymptomatic or having very low symptoms overtime, a pattern designated as resilience'.

Positive psychology has been applied to explore how organisations can influence resilience and well-being of employees (Bakker & Schaufeli, 2008; Bardoel et al., 2014; Youssef & Luthans, 2007) as can positive organisational behaviour (Bakker & Schaufeli, 2008). Conditions and resources organisations can provide include; social supports at work, employee assistance programs, flexible work arrangements, reward and benefit systems, development programs and work-life balance practices (Bardoel et al., 2014). Positive organisational behaviour benefits employees and results in better outcomes for organisations (Lengnick-Hall et al., 2011). There is evidence that behaviours of nurse managers can affect nurses' well-being and their ability to provide quality care (Adams et al., 2018) mirroring findings in other workplaces (Boddy, 2014; Chughtai et al., 2015).

The definitions of resilience utilised in the context of nursing research remain ill defined. Whilst the origins of the construct labelled 'resilience' arises from developmental psychology it is evident that the ability to be resilient is not limited to childhood. Like others, nurses are exposed to significant stressors and adversity in the workplace that may be modulated by resilience but have the potential to cause stress, depression or anxiety.

Methods

Nursing Literature Search

In reviewing resilience literature relevant to nurses the following electronic databases were searched from the date each was available to July 2019: CINHAL, MEDLINE, and PSYCINFO. Terms used were, resilienc*, AND nurs*. Titles and abstracts for all papers were reviewed to determine suitability and reference lists of retrieved articles were manually searched to identify additional studies. Inclusion criteria captured qualitative studies, quantitative studies, discussion papers and reviews, in English, explicitly discussing or investigating resilience in nurses (Figure 1). Exclusion criteria are listed below:

1. Resilience in nurses not a main focus
2. Student nurses
3. All other health professionals*
4. Patients or carers
5. Healthcare systems resilience

* due to similarities between nursing and midwifery professions, papers describing both disciplines were included, those solely on midwives were excluded.

Included papers were read and analysed to discover the attributes, antecedents and consequences related to resilience in nurses.

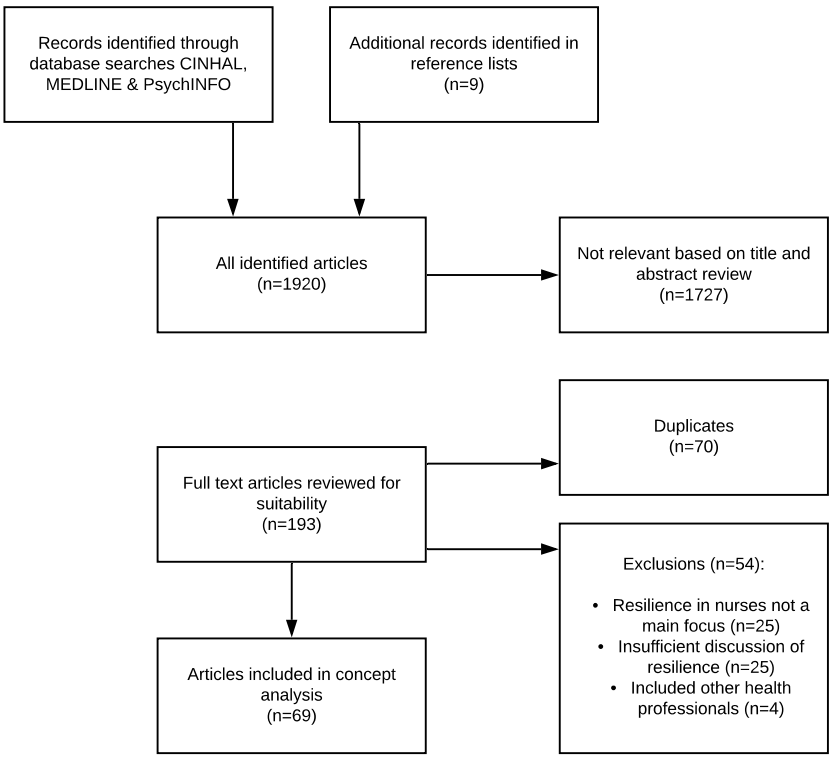


Figure 1. Literature Search

Findings

Resilience in Nursing

Nursing is a high stress profession facing increasing pressures in a changing social and ethical context. These pressures can lead to moral distress, CF and burnout which negatively impact nurses and the patients under their care (Hegney et al., 2014; Mealer et al., 2012a; Rushton et al., 2015). The study and understanding of individual resilience in nurses has become increasingly important. Whilst there is currently no universally agreed definition of resilience in the nursing literature a number of themes have been identified '… rising above to overcome adversity, adaptation and adjustment, "ordinary magic", good mental health as a proxy for resilience and the ability to bounce back' (Aburn et al., 2016, p. 984). The nursing literature has considered individual characteristics associated with resilience, resilience as a dynamic process and resilience as an innate energy or motivating life force (Grafton et al., 2010). It is believed resilience can be enhanced and modified in nurses and is therefore not a fixed personality trait (Craigie et al., 2016; Foster, Shochet, et al., 2018; Foureur et al., 2013; McDonald et al., 2013; Mealer et al., 2014; Slatyer, Craigie, Heritage, et al., 2018). Resilience of nurses has been studied in a variety of settings including; mental health (Itzhaki et al., 2015; Matos et al., 2010; Prosser et al., 2017), intensive care (Mealer et al., 2017; Mealer, et al., 2012a; Mealer et al., 2012b), oncology (Kutluturkan et al., 2016; Lim et al., 2016; Zander et al., 2013), operating theatres (Gillespie et al., 2009; Gillespie et al., 2007), emergency departments (Flarity et al., 2013; Hsieh et al., 2017; Tubbert, 2016) and aged care (Cameron & Brownie, 2010; Cope et al., 2016c). There is agreement that resilience is vital in enabling nurses to cope with workplace stress and pressures (Hart et al., 2014; Hegney, Rees, et al., 2015; McAllister & McKinnon, 2009; Mealer et al., 2012a; Tusaie & Dyer, 2004). Resilience is associated with the prevention of negative outcomes including burnout, CF, STS, depression,

stress and anxiety (Hegney, Rees, et al., 2015; Kutluturkan et al., 2016; Lanz & Bruk-Lee, 2017; Lanz & Bruk-Lee, 2017; Manzano García & Ayala Calvo, 2012; Mealer et al., 2017; Mealer et al., 2012a; Rushton et al., 2015).

Numerous attributes associated with resilience in nurses have been identified (Table 2 – see supplementary material). A variety of definitions have been employed, often drawing on definitions used in psychology. Pipe et al., (2012, p. 11) consider resilience to be '… the ability to adapt to life's ever-changing landscape and recover quickly from stressors and potential stressors'. The analogy of "bouncing back" is frequently employed in definitions of resilience in nursing (Aburn et al., 2016; Hart et al., 2014; Mealer et al., 2017; Tubbert, 2016). Wei et al., (2014) employed a more complex definition considering resilience as a multifaceted construct including personal determination, the ability to endure, adapt and recover from adversity. Delgado et al. (2017) viewed resilience in nursing as a personal capacity that helps nurses manage workplace adversity and demands. Definitions vary and no universal definition from a nursing perspective has been established. To analyse the concept of resilience in relation to nurses the defining attributes require deeper examination.

Defining Attributes

Determining the defining cluster of attributes most frequently associated with the concept is a crucial aspect of the analysis (Walker & Avant, 2011). These help to differentiate the concept of resilience from other concepts. Numerous attributes of nurse resilience have been identified (Table 2 – see supplementary material). The defining attributes are not exhaustive however, they are based on analysis of the literature of resilience in nurses. Six **key** defining attributes most frequently cited in the literature are; social support, self-efficacy, work-life balance/self-care, humour, optimism and being realistic. These attributes are described in detail below:

1) Social support:

Social supports promoting resilience in nurses were frequently identified in the literature. Effective social support results in individuals feeling valued, cared for and provides a sense of belonging (Cobb, 1976). Nurses can draw on social support from colleagues, managers, friends and families. Individuals need to engage with social supports and workplaces can provide support systems and foster positive collegial relationships.

2) Self-efficacy:

Self-efficacy refers to an individual's belief in their ability to succeed in a given situation or activity (Bandura, 1978). An individual's perception of self-efficacy will influence the activities they engage in and those with higher levels of self-efficacy are more likely to persevere and succeed (Bandura, 1978).

3) Work-life balance/self-care:

Achieving work-life balance and self-care is crucial to well-being. Work-life balance is the division of an individual's time between work and family or leisure activities. Work-life balance does not mean time is equally divided between work and non-work activities but can vary over time and is the perception that work and non-work activities are compatible (Kalliath & Brough, 2008). Self-care is when an individual actively practices protecting their well-being and happiness. This encompasses practices which maintain and protect both physical and mental well-being (Orem, 1985). Self-care includes a wide range of activities including; exercise, good nutrition, mindfulness, meditation and socialising (Richards et al., 2010).

4) Humour:
The ability to make light of adversity through humour has long been recognised as a way in which nurses and other health professionals cope with workplace stress (Wanzer et al., 2005). Humour can foster relationships with colleagues and patients enabling teamwork, relieving tension (Dean & Major, 2008) and improving experiences (Tanay et al., 2014; Åstedt-Kurki & Isola, 2001).

5) Optimism:
Optimism is the extent to which individuals hold favourable expectations for the future and is linked to increased levels of coping and better physical health whereas, pessimism is the expectation that bad things will happen (Carver et al., 2010). Hope is related to optimism but differs as it is a feeling of expectation or desire for a particular thing to happen rather than a general favourable outlook (Bryant & Cvengros, 2004). There is evidence that positive emotions may sustain psychological resilience (Fredrickson, 2001). In nurses optimism is often discussed in the context of remaining positive and looking for the positive in adversity (Hart et al., 2014; Jackson et al., 2007; McDonald et al., 2012; Pipe et al., 2012).

6) Being realistic:
Nurses also need to be realistic as clearly not all situations they encounter have positive outcomes. Being realistic can be described as having a practical and sensible idea of what can be achieved or expected. This includes reframing experiences, having realistic expectations about caregiving, cultivating a realistic perspective on life and realistic goal setting. (Cline, 2015; Gillman et al., 2015, Leverence, 2015; Prosser et al., 2017; Zander et al, 2013). Being realistic is important because unrealistic optimism has potential negative consequences for physical and psychological well-being (Shepperd et al., 2017).

Case Studies
The defining attributes of resilience can now be employed to construct model, borderline and contrary cases. Walker and Avant (2011) indicate these can be from real life, constructed or in the literature. The purpose of the cases is to demonstrate what the concept *is* and *is not* by the presence or absence of the defining attributes. In order to demonstrate all attributes, it is common to use constructed case studies (Earvolino-Ramirez, 2007; Vázquez-Calatayud et al., 2017; Wang, 2004). The presented cases reflect the adversity and stressors nurses can face in their daily work and the context in which nurse resilience has been explored in the literature.

Model Case
The following constructed model case presents a '…pure case of the concept,…' (Walker & Avant, 2011, p. 163).

Sarah is a registered nurse (RN) working on an acute psychiatric ward. Each day she faces numerous stressors including caring for high acuity patients, skill mix and resourcing issues, traumatic situations including patient self-harm and suicide attempts, and workplace violence. Sarah is an experienced RN confident in her abilities, demonstrating a high level of self-efficacy. She has effective social support at work and in her personal life. Sarah will often de-brief with colleagues formally in facilitated de-brief sessions, if there has been a particularly traumatic event, and informally, going out with colleagues after work. The organisation Sarah works for provides access to counselling and support. She also has the support of family and friends who she shares her feelings and experiences with. Sarah can rely on her sense of humour in difficult situations and will take away the positive in any situation, remaining optimistic. Sarah has a realistic outlook and acknowledges every patient's experience and recovery journey differs. Sarah maintains her work-life balance, making time

to do things she enjoys outside of work including; practising mindfulness, exercise, travel and socialising.

Borderline Case
The following constructed borderline case provides an example where most of the attributes of resilience are present.

Angela is a RN on a surgical ward. She cares for high acuity patients and resource and skill mix issues occur frequently. Angela is confident and competent caring for surgical patients although she becomes "flustered" if things don't quite go according to her shift plan. She is expected to co-ordinate on the ward, a role the organisation has not prepared her for or provided support for. She gets on well with colleagues and has a supportive family. Angela has an active social life, making time for life outside of work. Angela likes routine where she can stick to her care plan for the shift. When there are unexpected complications or poor outcomes, she feels responsible for the consequences although they are often outside her control. This leaves Angela feeling stressed and anxious for a time.

Contrary Case
The following constructed contrary case provides an example of where the attributes of resilience are not present.

Joe is a RN working on a medical ward which is often poorly staffed and does not have an adequate skill mix. Some patients are confused and can be aggressive towards staff. Joe cares for patients who are dying. Although Joe is a RN he does not feel confident in his abilities and feels pessimistic about his work. Frequently Joe has trouble completing the tasks on his plan. The organisation Joe works for has few supports in place for staff. Joe doesn't engage with his colleagues nor does he discuss the stresses of work with family or friends. Joe often calls in sick and after stressful days at work he will isolate himself and drink alone. He often thinks of leaving the nursing profession but is not sure what he would do instead.

Antecedents
Antecedents are the events or incidents that must occur prior to the occurrence of the concept (Walker & Avant, 2011). The main antecedent for resilience is adversity. In order for an individual to employ and demonstrate resilience significant stressors must be encountered which contribute to the experience of adversity. Nurses frequently encounter significant adversity in their work including; exposure to traumatic situations (Mealer et al., 2017; Morrison & Korol, 2014), shift work (Happell et al., 2013; Zander et al., 2013), workplace violence (Hsieh et al., 2016; Koen et al., 2011), staff shortages (Koen et al., 2011; McDonald et al., 2013; Zander et al., 2013), skill mix issues (Happell et al., 2013; Zander et al., 2013), poor remuneration (Khamisa et al., 2013; Koen et al., 2011; McHugh et al., 2011), gender inequalities (Evans, 1997; Williams, 2013), inter-professional conflict (Lanz & Bruk-Lee, 2017), patient acuity (Cope et al., 2016a) and death and dying (Lanz & Bruk-Lee, 2017; Mealer et al., 2017; Shimoinaba et al., 2015). Although these are not unique to nurses the level of exposure to patients through direct involvement in care and extended interpersonal contact is unique to the profession (Boyle, 2011; Jarrad et al., 2018).

Consequences
Consequences are the events or incidents that result from the occurrence of the concept. The most cited consequences of possessing resilience in the literature are the prevention of negative psychological outcomes, increased job satisfaction, remaining in the workforce and

increased quality of patient care (Table 2 – see supplementary material). These consequences are important given the global predictions of nursing shortages which will adversely impact care quality (World Health Organisation, 2013). The attributes associated with resilience enable nurses to adapt and bounce back.

Empirical Referents

The final step of CA is determining the empirical referents by which the defining attributes can be recognised and measured (Walker & Avant, 2011). A number of scales have been designed to measure individual resilience by measuring the attributes associated with resilience. The Connor Davidson Resilience Scale (CD-RISC) (Connor & Davidson, 2003) is a 25 item scale which is a multidimensional measure and draws on numerous attributes (Table 3). The CD-RISC has been used across a variety of populations and studies measuring resilience in nurses (Gillespie et al., 2009; Guo et al., 2017; Hudgins, 2016; Manzano García & Ayala Calvo, 2012; Mealer et al., 2012a; Rushton et al., 2015; Russo et al., 2018). Five of the six key attributes identified in nurses are included in the CD-RISC (Connor & Davidson, 2003). These attributes are also measurable with a variety of other tools including; self-efficacy (Chen et al., 2001; Sherer et al., 1982), optimism (Scheier et al., 1994), social support (Sarason et al., 1983) and humour (Martin & Lefcourt, 1984; Thorson & Powell, 1991). The attribute of work-life balance/self-care is not included in the CD-RISC but other tools do exist to measure these such as the Mindful Self-Care Scale (Cook-Cottone & Guyker, 2018) which encompasses physical and psychological self-care and considers work-life balance.

Table 3. Characteristics of Resilient People identified by Connor and Davidson (2003)

View change or stress as a challenge/opportunity
Commitment
Recognition of limits to control
Engaging the support of others
Close, secure attachments to others
Personal or collective goals
Self-efficacy
Strengthening effect of stress
Past successes
Realistic sense of control/having choices
Sense of humour
Action orientated approach
Patience
Tolerance of negative effect
Adaptability to change
Optimism
Faith

Working Definition

The nature of nurses' work is characterised by extended interpersonal contact and direct involvement in delivery of patient care having the potential to create stress and adversity demanding interpersonal resilience. This CA has identified that resilience is vital in enabling nurses to positively adapt. There are a number of antecedents, defining attributes and consequences that contribute to nurse resilience (Figure 2). Based on the CA presented we propose the following definition:

Resilience is a complex and dynamic process which when present and sustained enables nurses to positively adapt to workplace stressors, avoid psychological harm and continue to provide safe, high quality patient care.

To sustain resilience, nurses need to draw upon their own resources (including family, friends and colleagues) and have organisational conditions and support which promote resilience. Without the combination of personal attributes, social and workplace support, nurses will face difficulty in continuing in the profession and are likely to leave employment or worse, suffer psychological harm. If steps to sustain nurse resilience are not taken it is likely that nursing shortages will be further exacerbated resulting in poorer health outcomes for patients.

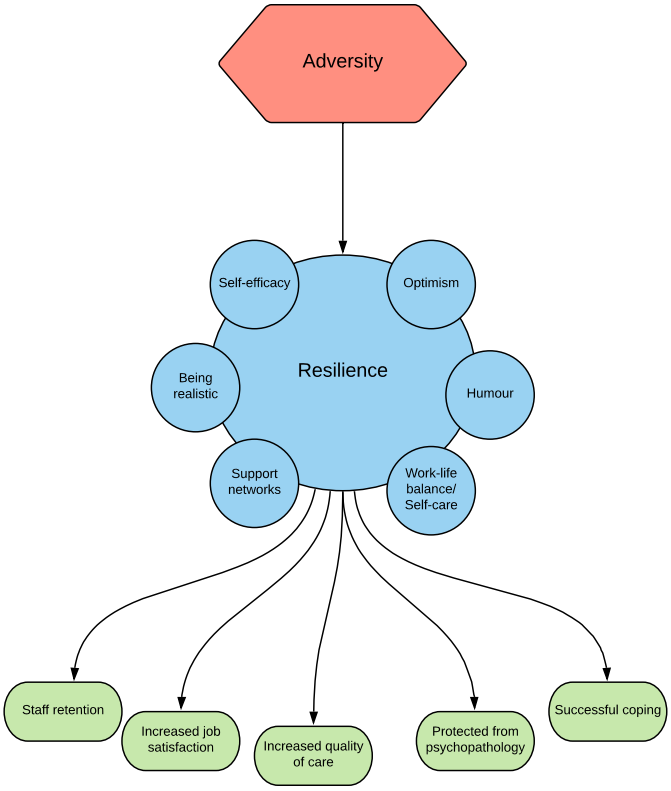


Figure 2. The concept of resilience in nurses

Discussion

Clearly, nurse resilience is gaining increasing attention in both research and practice illustrated by the large number of publications exploring the topic in recent years. Gaining an understanding of resilience and how to sustain nurse resilience is viewed as an essential requirement for the nursing profession. This move towards a focus on protective factors is in distinct contrast to earlier research which concentrated on the potential negative outcomes of working as a nurse (Cusack et al., 2016; Gillespie et al., 2009; Manzano García & Ayala Calvo, 2012; Mealer et al., 2012a; Rushton et al., 2015). Given the increasing pressures faced by the nursing profession including nursing shortages, reducing resources and increasing patient complexity and acuity this shift in focus is needed (Koen et al., 2011; McDonald et al., 2013; Zander et al., 2013). Finding solutions to the challenges nurses face is crucial, promoting and

sustaining nurse resilience could potentially play a role in supporting nurses and avoiding harm.

Through the process of concept analysis a detailed description of resilience specific to nurses has been drawn. The six key defining attributes incorporate internal and external factors which are cited as promoting nurse resilience. The use of case studies assists in the demonstration of the concept of resilience specific to nurses applying the presence or absences of the attributes in a clinical context. The clinical working environment is associated with adversity and stressors (Happell et al., 2013; Hsieh et al., 2016; Mealer et al., 2017; Zander et al., 2013) which are antecedents for resilience and are reflected in the case studies presented. A frequently described consequence of possessing high levels of resilience is the prevention of negative psychological outcomes (Table 2 – supplementary material). This includes the prevention or reduction of symptoms of burnout, depression and anxiety which nurses can experience as a result of their work (Hegney, Rees, et al., 2015; Kutluturkan et al., 2016; Lanz & Bruk-Lee, 2017; Lanz & Bruk-Lee, 2017; Manzano García & Ayala Calvo, 2012; Mealer et al., 2017; Mealer et al., 2012a; Rushton et al., 2015). As well as being considered as a protective factor it is suggested resilience also results in benefits for nurses, organisations and patients, with increased job satisfaction, staff retention and increased quality of patient care (Table 2 – see supplementary material). Resilient processes are also associated with positive individual outcomes including the maintenance of psychological wellbeing and mental health (Foster et al., 2020; Gao et al., 2017; Itzhaki et al., 2015).

It is evident the literature to date has focused primarily on the actions individual nurses can take to develop and sustain resilience. This approach has recently been questioned and criticised as an incomplete because it largely ignores the working conditions nurses endure which can place them at risk (Taylor, 2019; Traynor, 2017; Virkstis et al., 2018). A more comprehensive approach to sustaining resilience in nurses is needed including consideration of the role organisations can play in promoting resilience of nurses under their employment. The scope and understanding of factors which affect nurse resilience beyond an internal locus is needed to fully optimise resilience research and resulting interventions.

Conclusion

In this paper we have provided a working definition of nurse resilience that has been empirically derived. The six key attributes that define nurse resilience provide a useful framework to guide future research in the area. Until now, research investigating nurse resilience is difficult to interpret due to the use of a multitude of different terms and concepts. We believe that a unified definition of resilience in the nursing profession will enable a more consistent understanding to guide research and interpretation to practice.

Relevance for Clinical Practice

Resilience is needed to successfully adapt and prosper as a nurse in clinical practice. Understanding resilience in the context of nurses and the factors which affect nurse resilience are critical to the development of effective research, policies, interventions and work environments to protect nurse wellbeing, retain nurses in the profession and ensure the provision of quality care. Organisations need to develop and provide strategies which promote and sustain resilience in mental health nurses. Given the complexity of nurse resilience, multifaceted approaches are needed which consider the unique stressors mental health nurses encounter and includes changes to work environment and conditions, as well as programs which help to develop and maintain individual resilience. These strategies need to implemented, tested and evaluated in different mental health settings to optimise

resilience, reduce the risk of psychological harm and promote the wellbeing of mental health nurses.

Acknowledgements

We would like to acknowledge Dr Shirley McGough for her critical review of the manuscript.

References

Ablett, J., R., & Jones, R., S., P. (2007). Resilience and well-being in palliative care staff: A qualitative study of hospice nurses' experience of work. *Psycho-Oncology, 16*(8), 733-740. doi:10.1002/pon.1130

Aburn, G., Gott, M., & Hoare, K. (2016). What is resilience? An integrative review of the empirical literature. *Journal of Advanced Nursing, 72*(5), 980-1000. doi:10.1111/jan.12888

Adams, A. M. N., Chamberlain, D., & Giles, T. M. (2018). The perceived and experienced role of the nurse unit manager in supporting the wellbeing of intensive care unit nurses: An integrative literature review. *Australian Critical Care*. doi:10.1016/j.aucc.2018.06.003

Agaibi, C. E., & Wilson, J. P. (2005). Trauma, PTSD, and resilience: A review of the literature. *Trauma, Violence, & Abuse, 6*(3), 195-216. doi:10.1177/1524838005277438

Alderson, M., Parent-Rocheleau, X., & Mishara, B. (2015). Critical Review on Suicide Among Nurses. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 36*(2), 91-101. doi:10.1027/0227-5910/a000305

Anderson, K. M., Renner, L. M., & Danis, F. S. (2012). Recovery: Resilience and growth in the aftermath of domestic violence. *Violence Against Women, 18*(11), 1279-1299. doi:10.1177/1077801212470543

Ang, S. Y., Uthaman, T., Ayre, T. C., Mordiffi, S. Z., Ang, E., & Lopez, V. (2018). Association between demographics and resilience - a cross-sectional study among nurses in Singapore. *International Nursing Review*. doi:10.1111/inr.12441

Åstedt-Kurki, P., & Isola, A. (2001). Humour between nurse and patient, and among staff: Analysis of nurses' diaries. *Journal of Advanced Nursing, 35*(3), 452-458. doi:10.1046/j.1365-2648.2001.01860.x

Atkinson, P. A., Martin, C. R., & Rankin, J. (2009). Resilience revisited. *Journal of Psychiatric and Mental Health Nursing, 16*(2), 137-145. doi:10.1111/j.1365-2850.2008.01341.x

Babanataj, R., Mazdarani, S., Hesamzadeh, A., Gorji, M. H., & Cherati, J. Y. (2019). Resilience training: Effects on occupational stress and resilience of critical care nurses. *International Journal of Nursing Practice, 25*(1), e12697. doi:10.1111/ijn.12697

Bakker, A. B., & Schaufeli, W. B. (2008). Positive organizational behavior: Engaged employees in flourishing organizations. *Journal of Organizational Behavior, 29*(2), 147-154. doi:10.1002/job.515

Baldwin, M. (2008). Concept analysis as a method of inquiry. *Nurse Researcher, 15*(2), 49-58. doi:10.7748/nr2008.01.15.2.49.c6329

Bandura, A. (1978). Self- efficacy: Toward a unifying theory of behavioral change. *Advances in Behaviour Research and Therapy, 1*(4), 139-161. doi:10.1016/0146-6402(78)90002-4

Bardoel, E. A., Pettit, T. M., De Cieri, H., & McMillan, L. (2014). Employee resilience: An emerging challenge for HRM. *Asia Pacific Journal of Human Resources, 52*(3), 279-297. doi:10.1111/1744-7941.12033

Bartone, P. T. (1999). Hardiness protects against war-related stress in army reserve forces. *Consulting Psychology Journal: Practice and Research, 51*(2), 72-82. doi:10.1037/1061-4087.51.2.72

Boddy, C. (2014). Corporate psychopaths, conflict, employee affective well-being and counterproductive work behaviour. *Journal of Business Ethics, 121*(1), 107-121. doi:10.1007/s10551-013-1688-0

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist, 59*(1), 20-28. doi:10.1037/0003-066X.59.1.20

Boyle, D. A. (2011). Countering compassion fatigue: A requisite nursing agenda. *Online Journal of Issues in Nursing, 16*(1), 2. doi:10.3912/OJIN.Vol16No01Man02

Brennan, E. (2017). Towards resilience and wellbeing in nurses. *British Journal of Nursing, 26*(1), 43. doi:10.12968/bjon.2017.26.1.43

Brown, J., Francis, K., Cusack, L., & Hegney, D. (2016). Comprehensive systematic review of appropriateness and effectiveness of intervention programs that aim to build and maintain resilience in nurses and midwives. In Y. Mak, V. Chiang, & O. Fung (Eds.), *Enhancing patient safety through quality nursing education - the challenges and solutions from a multi-disciplinary perspective* (pp. 70-89). Kowloon: The Hong Kong Society for Nursing Education Limited.

Brown, S., Whichello, R., & Price, S. (2018). The impact of resiliency on nurse burnout: An integrative literature review. *MEDSURG Nursing, 27*(6), 349-378.

Bryant, F., & Cvengros, J. (2004). Distinguishing hope and optimism: Two sides of a coin or two seperatie coins? *Journal of Social and Clinical Psychology*, *23*(2), 273-302. doi:10.1521/jscp.23.2.273.31018

Cameron, F., & Brownie, S. (2010). Enhancing resilience in registered aged care nurses. *Australasian Journal on Ageing, 29*(2), 66-71. doi:10.1111/j.1741-6612.2009.00416.x

Carpenter, G. S. J., Carpenter, T. P., Kimbrel, N. A., Flynn, E. J., Pennington, M. L., Cammarata, C., . . . Gulliver, S. B. (2015). Social support, stress, and suicidal ideation in professional firefighters. *American Journal of Health Behavior, 39*(2), 191. doi:10.5993/AJHB.39.2.5

Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review, 30*(7), 879-889. doi:10.1016/j.cpr.2010.01.006

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods, 4*, 62-83. doi:10.1177/109442810141004

Chinn, P. L., & Kramer, M. K. (1995). *Theory and nursing : A systematic approach*. St. Louis: Mosby.

Chughtai, A., Byrne, M., & Flood, B. (2015). Linking ethical leadership to employee well-being: The role of trust in supervisor. *Journal of Business Ethics, 128*(3), 653-663. doi:10.1007/s10551-014-2126-7

Cicchetti, D., Rogosch, F. A., Lynch, M., & Holt, K. D. (1993). Resilience in maltreated children: Processes leading to adaptive outcome. *Development and Psychopathology, 5*(4), 629-647. doi:10.1017/S0954579400006209
Cline, S. (2015). Nurse leader resilience: Career defining moments. *Nursing Administration Quarterly, 39*(2), 117-122. doi:10.1097/NAQ.0000000000000087
Cobb, S. (1976). Social support as a moderator of life stress. *Psychosomatic Medicine, 38*(5), 300-314. doi:10.1097/00006842-197609000-00003
Cohen, E., Dekel, R., & Solomon, Z. (2002). Long-term adjustment and the role of attachment among Holocaust child survivors. *Personality and Individual Differences, 33*(2), 299-310. doi:10.1016/S0191-8869(01)00156-8
Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety, 18*(2), 76-82. doi:10.1002/da.10113
Cook-Cottone, C., & Guyker, W. (2018). The development and validation of the Mindful Self-Care Scale (MSCS): An assessment of practices that support positive embodiment. *Mindfulness, 9*(1), 161-175. doi:10.1007/s12671-017-0759-1
Cope, V., Jones, B., & Hendricks, J. (2016a). Resilience as resistance to the new managerialism: Portraits that reframe nursing through quotes from the field. *Journal of Nursing Management, 24*(1), 115-122. doi:10.1111/jonm.12279
Cope, V., Jones, B., & Hendricks, J. (2016b). Why nurses chose to remain in the workforce: Portraits of resilience. *Collegian, 23*(1), 87-95. doi:10.1016/j.colegn.2014.12.001
Cope, V. C., Jones, B., & Hendricks, J. (2016c). Residential aged care nurses: Portraits of resilience. *Contemporary Nurse, 52*(6), 736-752. doi:10.1080/10376178.2016.1246950
Craigie, M., Osseiran-Moisson, R., Hemsworth, D., Aoun, S., Francis, K., Brown, J., . . . Rees, C. (2015). The influence of trait-negative affect and compassion satisfaction on compassion fatigue in Australian nurses. *Psychological Trauma: Theory, Research, Practice and Policy., 8*(1), 88-97. doi:10.1037/tra0000050
Craigie, M., Slatyer, S., Hegney, D., Osseiran-Moisson, R., Gentry, E., Davis, S., . . . Rees, C. (2016). A pilot evaluation of a mindful self-care and resiliency (MSCR) intervention for nurses. *Mindfulness, 7*(3), 764-774. doi:10.1007/s12671-016-0516-x
Cusack, L., Smith, M., Hegney, D., Rees, C., Breen, L., Witt, R., . . . Cheung, K. (2016). Exploring environmental factors in nursing workplaces that promote psychological resilience: Constructing a unified theoretical model. *Frontiers In Psychology, 7*(600). doi:10.3389/fpsyg.2016.00600
Daniels, J. K., Hegadoren, K. M., Coupland, N. J., Rowe, B. H., Densmore, M., Neufeld, R. W. J., & Lanius, R. A. (2012). Neural correlates and predictive power of trait resilience in an acutely traumatized sample: A pilot investigation. *The Journal of Clinical Psychiatry, 73*(3), 327-332. doi:10.4088/JCP.10m06293
Dean, R. A., & Major, J. E. (2008). From critical care to comfort care: The sustaining value of humour. *Journal of Clinical Nursing, 17*(8), 1088-1095. doi:10.1111/j.1365-2702.2007.02090.x
Delgado, C., Roche, M., Fethney, J., & Foster, K. (2020). Workplace resilience and emotional labour of Australian mental health nurses: Results of a national survey. *International Journal of Mental Health Nursing, 29*(1), 56-68. doi:10.1111/inm.12598
Delgado, C., Upton, D., Ranse, K., Furness, T., & Foster, K. (2017). Nurses' resilience and the emotional labour of nursing work: An integrative review of empirical literature. *International Journal of Nursing Studies, 70*, 71-88. doi:10.1016/j.ijnurstu.2017.02.008
Dolan, G., Strodl, E., & Hamernik, E. (2012). Why renal nurses cope so well with their workplace stressors. *Journal of Renal Care, 38*(4), 222-232. doi:10.1111/j.1755-6686.2012.00319.x
Dyess, L. S. M., Prestia, S. A., & Smith, C. M. (2015). Support for caring and resiliency among successful nurse leaders. *Nursing Administration Quarterly, 39*(2), 104-116. doi:10.1097/NAQ.0000000000000101
Earvolino-Ramirez, M. (2007). Resilience: A concept analysis. *Nursing Forum, 42*(2), 73-82. doi:10.1111/j.1744-6198.2007.00070.x
Elbogen, E. B., Johnson, S. C., Wagner, H. R., Newton, V. M., Timko, C., Vasterling, J. J., & Beckham, J. C. (2012). Protective factors and risk modification of violence in Iraq and Afghanistan War veterans. *The Journal of Clinical Psychiatry, 73*(6), e767-e773. doi:10.4088/JCP.11m07593
English Oxford Dictionary. (2017). *Resilience.* Retrieved from https://en.oxforddictionaries.com/definition/resilience
English Oxford Dictionary. (2018). *Adversity*. Retrieved from https://en.oxforddictionaries.com/definition/adversity
Evans, J. (1997). Men in nursing: Issues of gender segregation and hidden advantage. *Journal of Advanced Nursing, 26*(2), 226-231. doi:10.1046/j.1365-2648.1997.1997026226.x
Felton, J. S. (1998). Burnout as a clinical entity - its importance in health care workers. *48*(4), 237-250.
Fitzpatrick, J. J., & McCarthy, G. (2016). *Nursing concept analysis : Applications to research and practice*. New York: Springer Publishing Company.
Flarity, E. K., Gentry, E. J., & Mesnikoff, E. N. (2013). The effectiveness of an educational program on preventing and treating compassion fatigue in emergency nurses. *Advanced Emergency Nursing Journal, 35*(3), 247-258. doi:10.1097/TME.0b013e31829b726f
Fletcher, D., & Sarkar, M. (2013). Psychological resilience: A review and critique of definitions, concepts, and theory. *European Psychologist, 18*(1), 12-23. doi:10.1027/1016-9040/a000124
Foley, S. A., & Davis, H. A. (2017). A guide to concept analysis. *Clinical Nurse Specialist, 31*(2), 70-73. doi:10.1097/NUR.0000000000000277
Foster, K., Cuzzillo, C., & Furness, T. (2018). Strengthening mental health nurses' resilience through a workplace resilience programme: A qualitative inquiry. *Journal of Psychiatric and Mental Health Nursing, 25*(5-6), 338-348. doi:10.1111/jpm.12467
Foster, K., Shochet, I., Wurfl, A., Roche, M., Maybery, D., Shakespeare-Finch, J., & Furness, T. (2018). On PAR: A feasibility study of the Promoting Adult Resilience programme with mental health nurses. *International Journal of Mental Health Nursing*. doi:10.1111/inm.12447
Foster, K., Roche, M., Delgado, C., Cuzzillo, C., Giandinoto, J., & Furness, T. (2019). Resilience and mental health nursing: An integrative review of international literature. *International Journal of Mental Health Nursing, 28*(1), 71-85. doi:10.1111/inm.12548

Foster, K., Roche, M., Giandinoto, J., & Furness, T. (2020). Workplace stressors, psychological well-being, resilience, and caring behaviours of mental health nurses: A descriptive correlational study. *International Journal of Mental Health Nursing, 29*(1), 56-68. doi:10.1111/inm.12610

Foureur, M., Besley, K., Burton, G., Yu, N., & Crisp, J. (2013). Enhancing the resilience of nurses and midwives: Pilot of a mindfulnessbased program for increased health, sense of coherence and decreased depression, anxiety and stress. *Contemporary Nurse, 45*(1), 114-125. doi:10.5172/conu.2013.45.1.114

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology. *American Psychologist, 56*(3), 218-226. doi:10.1037/0003-066X.56.3.218

Fumis, R., Junqueira Amarante, G., Fátima Nascimento, A., & Vieira Junior, J. (2017). Moral distress and its contribution to the development of burnout syndrome among critical care providers. *Annals of Intensive Care, 7*(1), 1-8. doi:10.1186/s13613-017-0293-2

Galatzer-levy, I. R., Brown, A. D., Henn-haase, C., Metzler, T. J., Neylan, T. C., & Marmar, C. R. (2013). Positive and negative emotion prospectively predict trajectories of resilience and distress among high-exposure police officers. *Emotion, 13*(3), 545-553. doi:10.1037/a0031314

Gao, T., Ding, X., Chai, J., Zhang, Z., Zhang, H., Kong, Y., & Mei, S. (2017). The influence of resilience on mental health: The role of general well-being. *International journal of nursing practice, 23*(3). doi:10.1111/ijn.12535

Garmezy, N. (1991). Resiliency and vulnerability to adverse developmental outcomes associated with poverty. *American Behavioral Scientist, 34*(4), 416-430. doi:10.1177/0002764291034004003

Garmezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child Development, 55*(1), 97-111. doi:10.2307/1129837

Garmezy, N., & Streitman, S. (1974). Children at risk: The search for the antecedents of schizophrenia. Part I. Conceptual models and research methods. *Schizophrenia Bulletin, 8*, 14-90. doi:10.1093/schbul/1.8.14

Gershon, R. R. M., Barocas, B., Canton, A. N., Xianbin, L., & Vlahov, D. (2009). Mental, physical, and behavioral outcomes associated with perceived work stress in police officers. *Criminal Justice and Behavior, 36*(3), 275-289. doi:10.1177/0093854808330015

Gillespie, B. M., Chaboyer, W., & Wallis, M. (2009). The influence of personal characteristics on the resilience of operating room nurses: A predictor study. *International Journal of Nursing Studies, 46*(7), 968-976. doi:10.1016/j.ijnurstu.2007.08.006

Gillespie, B. M., Chaboyer, W., Wallis, M., & Grimbeek, P. (2007). Resilience in the operating room: Developing and testing of a resilience model. *Journal of Advanced Nursing, 59*(4), 427-438. doi:10.1111/j.1365-2648.2007.04340.x

Gillman, L., Adams, J., Kovac, R., Kilcullen, A., House, A., & Doyle, C. (2015). Strategies to promote coping and resilience in oncology and palliative care nurses caring for adult patients with malignancy: A comprehensive systematic review. *JBI Database of Systematic Reviews and Implementation Reports, 13*(5), 131-204.

Glass, N. (2009). An investigation of nurses' and midwives' academic/clinical workplaces: A healing model to improve and sustain hope, optimism, and resilience in professional practice. *Holistic Nursing Practice, 23*(3), 158-170. doi:10.1097/HNP.0b013e3181a056c4

Gold, P. B., Engdahl, B. E., Eberly, R. E., Blake, R. J., Page, W. F., & Frueh, B. C. (2000). Trauma exposure, resilience, social support, and PTSD construct validity among former prisoners of war. *Social Psychiatry and Psychiatric Epidemiology, 35*(1), 36-42. doi:10.1007/s001270050006

Gorse, C., Johnston, D., & Pritchard, M. (2012). *A dictionary of construction, surveying, and civil engineering*. Oxford: Oxford University Press.

Grafton, E., Gillespie, B., & Henderson, S. (2010). Resilience: The power within. *Oncology Nursing Forum, 37*(6), 698. doi:10.1188/10.ONF.698-705

Guest, R., Craig, A., Nicholson Perry, K., Tran, Y., Ephraums, C., Hales, A., . . . Middleton, J. (2015). Resilience following spinal cord injury: A prospective controlled study investigating the influence of the provision of group cognitive behavior therapy during inpatient rehabilitation. *Rehabilitation Psychology, 60*(4), 311-321. doi:10.1037/rep0000052

Guo, Y., Cross, W., Plummer, V., Lam, L., Luo, Y., & Zhang, J. (2017). Exploring resilience in Chinese nurses: A cross-sectional study. *Journal of Nursing Management, 25*(3), 223-230. doi:10.1111/jonm.12457

Hagen, J., Knizek, B. L., & Hjelmeland, H. (2017). Mental health nurses' experiences of caring for suicidal patients in psychiatric wards: An emotional endeavor. *Archives of Psychiatric Nursing, 31*(1), 31-37. doi:10.1016/j.apnu.2016.07.018

Happell, B., Dwyer, T., Reid-searl, K., Burke, K. J., Caperchione, C. M., & Gaskin, C. J. (2013). Nurses and stress: Recognizing causes and seeking solutions. *Journal of Nursing Management, 21*(4), 638-647. doi:10.1111/jonm.12037

Hart, P. L., Brannan, J. D., & De Chesnay, M. (2014). Resilience in nurses: An integrative review. *Journal of Nursing Management, 22*(6), 720-734. doi:10.1111/j.1365-2834.2012.01485.x

Hegney, D., Craigie, M., Hemsworth, D., Osseiran-Moisson, R., Aoun, S., Francis, K., & Drury, V. (2014). Compassion satisfaction, compassion fatigue, anxiety, depression and stress in registered nurses in Australia: study 1 results. *Journal of Nursing Management, 22*, 506-518. doi:10.1111/jonm.12160

Hegney, D., Rees, C. S., Eley, R., Osseiran-Morrison, R., & Francis, K. (2015). The contribution of individual psychological resilience in determining the professional quality of life of Australian nurses. *Frontiers in Psychology, 6*, 1613. doi:10.3389/fpsyg.2015.01613

Hendin, H., & Haas, A. P. (1984). *Wounds of war: The psychological aftermath of combat in Vietnam*. New York: Basic Books.

Hoge, E. A., Austin, E. D., & Pollack, M. H. (2007). Resilience: Research evidence and conceptual considerations for posttraumatic stress disorder. *Depression and Anxiety, 24*(2), 139-152. doi:10.1002/da.20175

Hsieh, H., Chang, S., & Wang, H. (2017). The relationships among personality, social support, and resilience of abused nurses at emergency rooms and psychiatric wards in Taiwan. *Women Health, 57*(1), 40-51. doi:10.1080/03630242.2016.1150385

Hsieh, H., Hung, Y., Wang, H., Ma, S., & Chang, S. (2016). Factors of resilience in emergency department nurses who have experienced workplace violence in Taiwan. *Journal of Nursing Scholarship, 48*(1), 23-30. doi:10.1111/jnu.12177

Hudgins, T. A. (2016). Resilience, job satisfaction and anticipated turnover in nurse leaders. *Journal of Nursing Management, 24*(1), E62-E69. doi:10.1111/jonm.12289

Itzhaki, M., Peles-Bortz, A., Kostistky, H., Barnoy, D., Filshtinsky, V., & Bluvstein, I. (2015). Exposure of mental health nurses to violence associated with job stress, life satisfaction, staff resilience, and post-traumatic growth. *International Journal of Mental Health Nursing, 24*, 403-412. doi:10.1111/inm.12151

Jackson, D., Firtko, A., & Edenborough, M. (2007). Personal resilience as a strategy for surviving and thriving in the face of workplace adversity: A literature review. *Journal of Advanced Nursing, 60*(1), 1-9. doi:10.1111/j.1365-2648.2007.04412.x

Jarrad, R., Hammad, S., Shawashi, T., & Mahmoud, N. (2018). Compassion fatigue and substance use among nurses. *Annals of General Psychiatry, 17*(13). doi:10.1186/s12991-018-0183-5

Jou, R. C., Kuo, C. W., & Tang, M. L. (2013). A study of job stress and turnover tendency among air traffic controllers: The mediating effects of job satisfaction. *Transportation Research Part E, 57*, 95-104. doi:10.1016/j.tre.2013.01.009

Kahana, B., Harel, Z., & Kahana, E. (1988). Predictors of psychological well-being among survivors of the Holocaust. In J. P. Wilson, Z. Harel, & B. Kahana (Eds.), *Human adaptation to extreme stress: From the Holocaust to Vietnam* (pp. 171-192). New York: Plenum Press.

Kalliath, T., & Brough, P. (2008). Work-life balance: A review of the meaning of the balance construct. *Journal of Management and Organization, 14*(3), 323-327. doi:10.5172/jmo.837.14.3.323

Kent, M. (2006). *The Oxford dictionary of sports science & medicine* (3rd ed.). Oxford: Oxford University Press.

Khamisa, N., Peltzer, K., & Oldenburg, B. (2013). Burnout in relation to specific contributing factors and health outcomes among nurses: A systematic review. *International Journal of Environmental Research and Public Health., 10*, 2214-2240. doi:10.3390/ijerph10062214

Kimbrel, N. A., Steffen, L. E., Meyer, E. C., Kruse, M. I., Knight, J. A., Zimering, R. T., & Gulliver, S. B. (2011). A revised measure of occupational stress for firefighters: Psychometric properties and relationship to posttraumatic stress disorder, depression, and substance abuse. *Psychological Services, 8*(4), 294-306. doi:10.1037/a0025845

Kluznik, J. C., Speed, N., Van Velkenberg, C., & MacGraw, R. (1986). Forty-year follow-up of United States prisoners of war. *American Journal of Psychiatry, 143*(11), 1443-1446. doi:10.1176/ajp.143.11.1443

Kobasa, S. C., Maddi, S. R., & Kahn, S. (1982). Hardiness and health: A prospective study. *Journal of Personality and Social Psychology, 42*(1), 168-177. doi:10.1037/0022-3514.42.1.168

Koen, M., van Eeden, C., & Wissing, M. (2011). The prevalence of resilience in a group of professional nurses. *Health SA Gesonheid, 16*(1), 1-11. doi:10.4102/hsag.v16i1.576

Koinis, A., Giannou, V., Drantaki, V., Angelaina, S., Stratou, E., & Saridi, M. (2015). The impact of healthcare workers job environment on their mental-emotional health. Coping strategies: the case of a local general hospital. *Health Psychology Research, 3*(1). doi:10.4081/hpr.2015.1984

Kornhaber, R. A., & Wilson, A. (2011). Building resilience in burns nurses: A descriptive phenomenological inquiry. *Journal of Burn Care & Research, 32*(4), 481-488. doi:10.1097/BCR.0b013e3182223c89

Kutluturkan, S., Sozeri, E., Uysal, N., & Bay, F. (2016). Resilience and burnout status among nurses working in oncology. *Annals of General Psychiatry, 15*(33). doi:10.1186/s12991-016-0121-3

Lanz, J. J., & Bruk-Lee, V. (2017). Resilience as a moderator of the indirect effects of conflict and workload on job outcomes among nurses. *Journal of Advanced Nursing, 73*(12), 2973-2986. doi:10.1111/jan.13383

Lee, J.S., Ahn, Y.S., Jeong, K.S., Chae, J.H., & Choi, K.S. (2014). Resilience buffers the impact of traumatic events on the development of PTSD symptoms in firefighters. *Journal of Affective Disorders, 162*, 128-133. doi:10.1016/j.jad.2014.02.031

Lengnick-Hall, C. A., Beck, T. E., & Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. *Human Resource Management Review, 21*(3), 243-255. doi:10.1016/j.hrmr.2010.07.001

Leverance, K. (2015) Become a more resilient nurse. *Oncology Nursing Society Connect*, 30(4). 25-28.

Lim, H. A., Tan, J. Y. S., Liu, J., Chua, J., Ang, E. N. K., Kua, E. H., & Mahendran, R. (2016). Strengthening resilience and reducing stress in psychosocial care for nurses practicing in oncology settings. *Journal of Continuing Education in Nursing, 47*(1), 8-10. doi:10.3928/00220124-20151230-03

Liu, D., Fairweather-Schmidt, A., Burns, R., & Roberts, R. (2015). The Connor-Davidson resilience scale: Establishing invariance between gender across the lifespan in a large community based study. *Journal of Psychopathology and Behavioral Assessment, 37*(2), 340-348. doi:10.1007/s10862-014-9452-z

Lowe, L. D. (2013). Creating a caring work environment and fostering nurse resilience. *International Journal for Human Caring, 17*(4), 52-59.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543-562. doi:10.1111/1467-8624.00164

Mahoney, J. L., & Bergman, L. R. (2002). Conceptual and methodological considerations in a developmental approach to the study of positive adaptation. *Journal of Applied Developmental Psychology, 23*(2), 195-217. doi:10.1016/S0193-3973(02)00104-1

Maier, R. (2011). Dimensions of stress among air traffic controllers. *Journal of Psychological and Educational Research, 19*(1), 52-62.

Manzano García, G., & Ayala Calvo, J. C. (2012). Emotional exhaustion of nursing staff: influence of emotional annoyance and resilience. *International Nursing Review, 59*(1), 101-107. doi:10.1111/j.1466-7657.2011.00927.x

Marie, M., Hannigan, B., & Jones, A. (2017). Resilience of nurses who work in community mental health workplaces in Palestine. *International Journal of Mental Health Nursing, 26*(4), 344-354. doi:10.1111/inm.12229

Martin, R. A., & Lefcourt, H. M. (1984). Situational Humor Response Questionnaire: Quantitative measure of sense of humor. *Journal of Personality and Social Psychology, 47*(1), 145-155. doi:10.1037/0022-3514.47.1.145

Martinussen, M., & Richardsen, A. (2006). Air Traffic Controller Burnout: Survey Responses Regarding Job Demands, Job Resources, and Health. *Aviation, Space and Environmental Medicine, 77*(4), 422-428.

Martinussen, M., Richardsen, A. M., & Burke, R. J. (2007). Job demands, job resources, and burnout among police officers. *Journal of Criminal Justice, 35*(3), 239-249. doi:10.1016/j.jcrimjus.2007.03.001

Matos, P. S., Neushotz, L. A., Quinn Griffin, M. T., & Fitzpatrick, J. J. (2010). An exploratory study of resilience and job satisfaction among psychiatric nurses working in inpatient units. *International Journal of Mental Health Nursing, 19*(5), 307-312. doi:10.1111/j.1447-0349.2010.00690.x

McAllister, M. (2013). Resilience: A personal attribute, social process and key professional resource for the enhancement of the nursing role. *Professioni Infermieristiche, 66*(1), 55-62. doi:10.7429/pi.2013.661055.

McAllister, M., & McKinnon, J. (2009). The importance of teaching and learning resilience in the health disciplines: A critical review of the literature. *Nurse Education Today, 29*(4), 371-379. doi:10.1016/j.nedt.2008.10.011

McDonald, G., Jackson, D., Vickers, M. H., & Wilkes, L. (2016). Surviving workplace adversity: a qualitative study of nurses and midwives and their strategies to increase personal resilience. *Journal of Nursing Management, 24*(1), 123-131. doi:10.1111/jonm.12293

McDonald, G., Jackson, D., Wilkes, L., & Vickers, M. (2013). Personal resilience in nurses and midwives: Effects of a work-based educational intervention. *Contemporary Nurse, 45*(1), 134-143. doi:10.5172/conu.2013.45.1.134

McDonald, G., Jackson, D., Wilkes, L., & Vickers, M. H. (2012). A work-based educational intervention to support the development of personal resilience in nurses and midwives. *Nurse Education Today, 32*(4), 378-384. doi:10.1016/j.nedt.2011.04.012

McHugh, M. D., Kutney-Lee, A., Cimiotti, J. P., Sloane, D. M., & Aiken, L. H. (2011). Nurses' widespread job dissatisfaction, burnout, and frustration with health benefits signal problems for patient care. *Health Affairs (Project Hope), 30*(2), 202. doi:10.1377/hlthaff.2010.0100

Mealer, M., Conrad, D., Evans, J., Jooste, K., Solyntjes, J., Rothbaum, B., & Moss, M. (2014). Feasibility and acceptability of a resilience training program for intensive care unit nurses. *American Journal of Critical Care, 23*(6), 97-105. doi:10.4037/ajcc2014747

Mealer, M., Jones, J., & Meek, P. (2017). Factors affecting resilience and development of posttraumatic stress disorder in critical care nurses. *American Journal of Critical Care, 26*(3), 184-192. doi:10.4037/ajcc2017798

Mealer, M., Jones, J., & Moss, M. (2012a). A qualitative study of resilience and posttraumatic stress disorder in United States ICU nurses. *Intensive Care Medicine, 38*(9), 1445-1451. doi:10.1007/s00134-012-2600-6

Mealer, M., Jones, J., Newman, J., McFann, K. K., Rothbaum, B., & Moss, M. (2012b). The presence of resilience is associated with a healthier psychological profile in intensive care unit (ICU) nurses: Results of a national survey. *International Journal of Nursing Studies, 49*(3), 292-299. doi:10.1016/j.ijnurstu.2011.09.015

Meyer, E. C., Zimering, R., Daly, E., Knight, J., Kamholz, B. W., & Gulliver, S. B. (2012). Predictors of posttraumatic stress disorder and other psychological symptoms in trauma-exposed firefighters. *Psychological Services, 9*(1), 1-15. doi:10.1037/a0026414

Moran, P. B., & Eckenrode, J. (1992). Protective personality characteristics among adolescent victims of maltreatment. *Child Abuse and Neglect: The International Journal, 16*(5), 743-754. doi:10.1016/0145-2134(92)90111-4

Morrison, K., & Korol, S. (2014). Nurses' perceived and actual caregiving roles: identifying factors that can contribute to job satisfaction. *Journal of Clinical Nursing, 23*, 3468-3477.

Morse, M. J. (1995). Exploring the theoretical basis of nursing using advanced techniques of concept analysis. *Advances in Nursing Science, 17*(3), 31-46. doi:10.1097/00012272-199503000-00005

O'Dougherty-Wright, M., Masten, A. S., & Narayan, A. J. (2013). Resilience processes in development: Four waves of research on positive adaptation in the context of adversity. In S. Goldstein & R. B. Brooks (Eds.), *Handbook of Resilience in Children* (2 ed.). Boston, MA: Springer.

O'Dougherty-Wright, M., Masten, A. S., Northwood, A., & Hubbard, J. J. (1997). Long-term effects of massive trauma: Developmental and psychobiological perspectives. In D. Cicchetti & S. L. Toth (Eds.), *Rochester Symposium on Developmental Psychopathology.* (Vol. 8, pp. 181-225). Rochester, NY: University of Rochester.

Online Etymology Dictionary. (2017). *Resilient*. Retrieved from http://www.etymonline.com/word/resilient

Orem, D. E. (1985). *Nursing: Concepts of practice* (3rd ed.). New York: McGraw-Hill.

Pan, J., & Chan, C. L. W. (2007). Resilience: A new research area in positive psychology. *Psychologia, 50*(3), 164-176. doi:10.2117/psysoc.2007.164

Papazoglou, K., & Andersen, J. P. (2014). A guide to utilizing police training as a tool to promote resilience and improve health outcomes among police officers. *Traumatology: An International Journal*. doi:10.1037/h0099394

Park, C., & Allaby, M. (2017). *A dictionary of environment and conservation* (3rd ed.). Oxford: New York: Oxford University Press.

Pietrzak, R. H., Tsai, J., Kirwin, P. D., & Southwick, S. M. (2014). Successful aging among older veterans in the United States. *American Journal Geriatric Psychiatry, 22*, 551-563. doi:10.1016/j.jagp.2012.11.018

Pipe, T. B., Buchda, V. L., Launder, S., Hudak, B., Hulvey, L., Karns, K. E., & Pendergast, D. (2012). Building personal and professional resources of resilience and agility in the healthcare workplace. *Stress and Health, 28*(1), 11-22. doi:10.1002/smi.1396

Prosser, S. J., Metzger, M., & Gulbransen, K. (2017). Don't just survive, thrive: Understanding how acute psychiatric nurses develop resilience. *Archives of Psychiatric Nursing, 31*(2), 171-176. doi:10.1016/j.apnu.2016.09.010

Richards, K., Campenni, C., & Muse-Burke, J. (2010). Self-care and well-being in mental health professionals: The mediating effects of self-awareness and mindfulness. *Journal of Mental Health Counseling, 32*(3), 247-264. doi:10.17744/mehc.32.3.0n31v88304423806

Rodgers, B. L., & Knafl, K. A. (1993). *Concept development in nursing : foundations, technqiues, and applications*. Philadelphia: Saunders.

Rushton, C., Batcheller, J., Schroeder, K., & Donohue, P. (2015). Burnout and resilience among nurses practising in high-intensity settings. *American Journal of Critical Care, 24*(5), 412-420. doi:10.4037/ajcc2015291

Russo, C., Calo, O., Harrison, G., Mahoney, K., & Zavotsky, K. (2018). Resilience and Coping After Hospital Mergers. *Clinical Nurse Specialist, 32*(2), 97-102. doi:10.1097/NUR.0000000000000358

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry, 57*(3), 316-331. doi:10.1111/j.1939-0025.1987.tb03541.x

Sarason, I. G., Levine, H. M., Basham, R. B., & Sarason, B. R. (1983). Assessing social support: The Social Support Questionnaire. *Journal of Personality and Social Psychology, 44*(1), 127-139. doi:10.1037/0022-3514.44.1.127

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology, 67*(6), 1063-1078. doi:10.1037/0022-3514.67.6.1063

Shepperd, J. A., Pogge, G., & Howell, J. L. (2017). Assessing the consequences of unrealistic optimism: Challenges and recommendations. *Consciousness and Cognition, 50*, 69-78. doi:10.1016/j.concog.2016.07.004

Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The self-efficacy scale: Construction and validation. *Psychological Reports, 51*(2), 663-671. doi:10.2466/pr0.1982.51.2.663

Shimoinaba, K., Connor, M., Lee, S., & Kissane, D. (2015). Nurses' resilience and nurturance of the self. *International Journal of Palliative Nursing, 21*(10), 504-510. doi:10.12968/ijpn.2015.21.10.504

Shirey, R. M. (2012). How resilient are your team members? *The Journal of Nursing Administration, 42*(12), 551-553. doi:10.1097/NNA.0b013e318274b4d6

Slatyer, S., Craigie, M., Heritage, B., Davis, S., & Rees, C. (2018). Evaluating the effectiveness of a brief mindful self-care and resiliency (MSCR) intervention for nurses: A controlled trial. *Mindfulness*, 1-13. doi:10.1007/s12671-017-0795-x

Slatyer, S., Craigie, M., Rees, C., Davis, S., Dolan, T., & Hegney, D. (2018). Nurse experience of participation in a mindfulness-based self-care and resiliency intervention. *Mindfulness.* doi:10.1007/s12671-017-0802-2

Southwick, S. M., Bonanno, G. A., Masten, A. S., Panter-Brick, C., & Yehuda, R. (2014). Resilience definitions, theory, and challenges: Interdisciplinary perspectives. *European Journal of Psychotraumatology, 5*(1). doi:10.3402/ejpt.v5.25338

Tan-Kristanto, S., & Kiropoulos, L. A. (2015). Resilience, self- efficacy, coping styles and depressive and anxiety symptoms in those newly diagnosed with multiple sclerosis. *Psychology, Health & Medicine, 20*(6), 635-645. doi:10.1080/13548506.2014.999810

Tanay, M., Wiseman, T., Roberts, J., & Ream, E. (2014). A time to weep and a time to laugh: Humour in the nurse–patient relationship in an adult cancer setting. *Supportive Care in Cancer, 22*(5), 1295-1301. doi:10.1007/s00520-013-2084-0

Taylor, R. A. (2019). Contemporary issues: Resilience training alone is an incomplete intervention. *Nurse Education Today,* 78, 10-13. doi.org/10.1016/j.nedt.2019.03.014

Thorson, J. A., & Powell, F. C. (1991). Measurement of sense of humor. *Psychological Reports, 69*(2), 691-702.

Tofthagen, R., Talseth, A., & Fagerström, L. (2014). Mental health nurses' experiences of caring for patients suffering from self-harm. *Nursing Research and Practice, 2014*, 905741. doi:10.1155/2014/905741

Traynor, M. (2017). Resilience: Part of the problem or part of the solution? *Mental Health Nursing, 37*(6), 8-10.

Tubbert, S. J. (2016). Resiliency in emergency nurses. *Journal of Emergency Nursing, 42*(1), 47-52. doi:10.1016/j.jen.2015.05.016

Turner, S. B., & Kaylor, S. D. (2015). Neuman systems model as a conceptual framework for nurse resilience. *Nursing Science Quarterly, 28*(3), 213-217. doi:10.1177/0894318415585620

Tusaie, K., & Dyer, J. (2004). Resilience: A historical review of the construct. *Holistic Nursing Practice, 18*(1), 3-10. doi:10.2466/pr0.2003.93.3f.1339

Vázquez-Calatayud, M., Oroviogoicoechea, C., Saracibar, M., & Pumar-Méndez, M. J. (2017). Transforming care in nursing: A concept analysis. *Contemporary Nurse, 53*, 217-234. doi:10.1080/10376178.2016.1260999

Virkstis, K., Herleth, A., & Langr, M. (2018). Cracks in the foundation of the care environment undermine nurse resilience. *The Journal of Nursing Administration, 48*(12), 597-599. doi:10.1097/NNA.0000000000000687

Wagner, C. (2015). Moral distress as a contributor to nurse burnout. *American Journal of Nursing, 115*(4), 11-11. doi:10.1097/01.NAJ.0000463005.73775.9e

Walker, B., Holling, C., Carpenter, S., & Kinzig, A. (2004). Resilience, adaptability and transformability in social-ecological systems. *Ecology and Society, 9*(2). doi:10.5751/ES-00650-090205

Walker, L. O., & Avant, K. C. (1995). *Strategies for theory construction in nursing* (3rd ed.). Norwalk, CT: Appleton & Lange.

Walker, L. O., & Avant, K. C. (2011). *Strategies for theory construction in nursing* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Wang, L., Tao, H., Bowers, B. J., Brown, R., & Zhang, Y. (2017). Influence of social support and self-efficacy on resilience of early career registered nurses. *Western Journal of Nursing Research*, 193945916685712. doi:10.1177/0193945916685712

Wang, T. (2004). Concept analysis of functional status. *International Journal of Nursing Studies, 41*(4), 457-462. doi:10.1016/j.ijnurstu.2003.09.004

Wanzer, M., Booth-Butterfield, M., & Booth-Butterfield, S. (2005). "If we didn't use humor, we'd cry": Humorous coping communication in health care settings. *Journal of Health Communication, 10*(2), 105 - 125.

Wei, W., & Taormina, R. J. (2014). A new multidimensional measure of personal resilience and its use: Chinese nurse resilience, organizational socialization and career success. *Nursing Inquiry, 21*(4), 346-357. doi:10.1111/nin.12067

Wells, R. D., & Schwebel, A. I. (1987). Chronically ill children and their mothers: Predictors of resilience and vulnerability to hospitalization and surgical stress. *Journal of Developmental and Behavioral Pediatrics, 18*, 83-89.

Werner, E. E., & Smith, R. S. (1982). *Vulnerable, but invincible : A longitudinal study of resilient children and youth*. New York: McGraw-Hill.

Williams, C. (2013). The glass escalator, revisited: Gender inequality in neoliberal times. *Gender and Society, 27*(5), 609-629. doi:10.1177/0891243213490232

Williams, J., Hadjistavropoulos, T., Ghandehari, O. O., Malloy, D. C., Hunter, P. V., & Martin, R. R. (2016). Resilience and organisational empowerment among long-term care nurses: Effects on patient care and absenteeism. *Journal of Nursing Management, 24*(3), 300-308. doi:10.1111/jonm.12311

Wilson, J. (1963). *Thinking with concepts*. Cambridge: Cambridge University Press.

World Health Organisation. (2013). In *A universal truth: No health without a workforce.*

Youssef, C. M., & Luthans, F. (2007). Positive organizational behavior in the workplace. *Journal of Management, 33*(5), 774-800. doi:10.1177/0149206307305562

Zander, M., Hutton, A., & King, L. (2013). Exploring resilience in pediatric oncology nursing staff. *Collegian, 20*, 17-25. doi:10.1016/j.colegn.2012.02.002

Zheng, Z., Gangaram, P., Xie, H., Chua, S., Ong, S. B. C., & Koh, S. E. (2017). Job satisfaction and resilience in psychiatric nurses: A study at the Institute of Mental Health, Singapore. *International Journal of Mental Health Nursing, 26*(6), 612-619. doi:10.1111/inm.12286

Zuckerman, M. (1999). *Vulnerability to psychopathology: A biosocial model*. Washington, DC: American Psychological Association.

2.3 Chapter Summary

This chapter presented a concept analysis and arrived at a working definition of nurse resilience which included the identification of antecedents, key attributes, and consequences of the concept. Application of the key attributes of nurse resilience in case studies helped to demonstrate the presence and absence of the concept in a clinical context. Adversity was the main antecedent for nurse resilience. Key attributes included internal and external factors which are believed to promote resilience. Determining the empirical referents by which the key attributes of resilience could be measured helped to inform the selection of an appropriate measure of resilience for the quantitative phase of the study. Consequences of nurse resilience included protection from negative psychological outcomes, increased job satisfaction, nurse retention, and increased quality of patient care. Identification of the antecedents, key attributes, and consequences of nurse resilience helped guide the development of focus group questions.

Conducting the concept analysis provided a detailed overview of how the concept of resilience has been applied to the nursing profession. This is valuable in considering the influences on our understanding of nurse resilience to date and how the use of the concept may have shaped research, policy, and practice relating to nurse resilience. Nurse resilience was defined as "…a complex and dynamic process which when present and sustained enables nurses to positively adapt to workplace stressors, avoid psychological harm and continue to provide safe, high quality patient care" (Cooper et al., 2020, p. 567). While completing the concept analysis derived a precise definition and provides mutual

understanding (Foley & Davis, 2017) it does not facilitate a critical review of research conducted in the area.

2.4 Supplementary Material to the Publication

Table 2. Literature utilised in the concept analysis

Authors	Country	Design	Antecedents	Defining Attributes	Empirical Referents	Consequences
Tusaie & Dyer. (2004)	USA	Historical review	Significant stress or adversity	Optimism, intelligence, humour, social skills, wide range of coping strategies, perceived social support	N/A	Bouncing back, cope successfully
Ablett et al. (2007)	UK	Qualitative	Workplace stress	High degree of commitment, sense of purpose, hardiness, sense of coherence, spirituality, work-life balance, collegial support, good social networks	Interviews	Job satisfaction, maintenance of well-being, staff retention, quality patient care
Gillespie et al. (2007)	Australia	Quantitative	Adversity, workplace stress	Hope, self-efficacy, coping, control and competence	Connor-Davidson Resilience Scale (Connor & Davidson, 2003)	Retention of nurses
Jackson et al. (2007)	Australia	Literature review	Adversity	Positive and nurturing professional relationships, maintaining positivity, emotional insight, life balance and spirituality, reflection	N/A	Reduced vulnerability to workplace adversity, maintenance of normal functioning, retain nurses

Gillespie et al. (2009)	Australia	Quantitative	Workplace stress, adversity	Experience (more experienced nurses had higher resilience levels)	Connor-Davidson Resilience Scale (Connor & Davidson, 2003)	Ability to adapt or cope
Glass. (2009)	Australia, New Zealand, UK & USA	Qualitative	Adversity	Hope, optimism, being realistic, flexibility, adaptability, critical reflection, emotional intelligence, self-care, social support, work-life balance	Participant observation, semi-structured conversational interviews art-based reflections and written reflections	Intrapersonal strength, personal growth, job satisfaction, effective workplace practices, delivery of quality healthcare
McAllister & McKinnon. (2009)	Australia	Literature review	Adversity	Internal locus of control, pro-social behaviour, empathy, positive self-image, optimism and the ability to organise daily responsibilities	N/A	Development of coping skills, thrive in busy dynamic workplaces
Cameron & Brownie (2010)	Australia	Qualitative	Adversity	Collegial support, debriefing, work-life balance, self-care, a sense of purpose, humour, optimism and positive thinking, strong social support network, spiritual practice, confidence, personal satisfaction and pride	Interviews	Competent, skilful holistic care. Retention of workforce.

Grafton et al. (2010)	Australia	Literature review	Stress, adversity	Holistic self-care practices, spiritual well-being	N/A	Enables nurses to better manage responses to stress, recover from or prevent depletion of self and reduce vulnerability to the impact of future stress
Matos et al. (2010)	USA	Quantitative	Adversity	Positive professional status, effective interpersonal relationships, communication	The Resilience Scale (Wagnild & Young, 1993)	Job satisfaction, protection against negative outcomes
Koen et al. (2011)	South Africa	Quantitative	Workplace adversity	High levels of hope, optimism, coping self-efficacy, sense of coherence and flourishing mental health	The Resilience Scale (Wagnild & Young, 1993)	Overcome adversity
Kornhaber & Wilson. (2011)	Australia	Qualitative	Adversity	Hardiness, emotional toughness, developing coping mechanisms, work-life balance, emotional detachment, natural selection (an innate ability), nursing and multidisciplinary team support, pragmatism, determination, perseverance, self-efficacy	Interviews	Retain nurses, transcend adversity, personal growth, sustain nurses through difficult and challenging working environments, improved outcomes for nurses and patients

Dolan et al. (2012)	Australia	Mixed methods	Adversity, stress	Sense of purpose, sense of achievement, self-reliance, enjoyment in work, not working shifts, emotional distancing	The Resilience Scale (Wagnild & Young, 1993)	Protection from negative consequences such as burnout, ability to care
Manzano Garcia & Calvo (2012)	Spain	Quantitative	Adversity	Self-awareness, realistic expectations, positive emotions	Connor-Davidson Resilience Scale (Connor & Davidson, 2003)	Protection from emotional exhaustion and burnout, staff retention
McDonald et al. (2012)	Australia	Qualitative	Adversity	Peer support, reflection, hardiness, positive outlook, emotional intelligence, intellectual flexibility, creative and critical thinking, work-life balance, spirituality	Post intervention interviews, workshop evaluations, field notes and research journals	Positive supportive relationships and networks, increased confidence, increased awareness, well-being in the workplace and other spheres, assertive communication and conflict resolution
Mealer et al. (2012a)	USA	Quantitative	Adversity	Social support, engaging in relationships, safe workplace, higher general life satisfaction, engaging in fun and leisure activities	Connor-Davidson Resilience Scale (Connor & Davidson, 2003)	Lower prevalence of post-traumatic stress disorder and burnout
Mealer et al. (2012b)	USA	Qualitative	Extreme stressors	Spirituality, supportive social network, optimism, having a resilient role model, acceptance that	Telephone interviews with highly resilient nurses and	Ability to continue to work successfully in stressful ICU environment,

				death is part of life, acceptance patient outcome cannot be controlled, humour, emotional intelligence, positive reframing, critical reflection, viewing trauma as a learning and/or growing experience, engaging in exercise, rituals	nurses with PTSD	prevent the development of PTSD,
Pipe et al. (2012)	USA	Mixed Methods	Stress	Positive approach, optimism, positive coping skills	The Personal and Organisational Quality Assessment – Revised (POQ-R)	Use of positive coping strategies, enhanced wellbeing, increased confidence, empowerment, improved physical health, staff retention
Shirey (2012)	USA	Discussion paper	Workplace change and adversity	Self-efficacy, hope, coping, confidence, hardiness, optimism, patience, tolerance, adaptability, a sense of humour, collegial support	N/A	Positive adaptation, cognitive transformation, personal control, personal growth in the wake of disruption, more readily accept change

Flarity et al. (2013)	USA	Quantitative	Adverse circumstances	Self-regulation, intentionality, self-validation, connection and support, self-care and revitalisation	N/A	Ability to bounce back or thrive.
Foureur et al. (2013)	Australia	Mixed methods	Stress	Mindfulness	N/A	Increased health, decreased depression, anxiety and stress, increased sense of coherence
Lowe (2013)	USA	Literature review	Adversity	Supportive social networks, optimism, having a resilient role model, spirituality, self-efficacy, a sense of humour, hope, adaptability/flexibility, caring and healthy work environment, self-care	N/A	Successful adaptation, protection against negative psychological outcomes, enhanced job satisfaction, decline in nurse turnover rates, ability to provide compassionate, caring and excellent care to patients
McAllister (2013)	Australia	Discussion paper	Adversity	Internal locus of control, staying calm, sense of humour, optimism, ability to transcend, connectedness to	N/A	Positive adaptation, may improve patient outcomes and build a stronger profession

				social/cultural/physical environment, has a repertoire of coping mechanisms, generativity		
McDonald et al. (2013)	Australia	Qualitative	Workplace adversity, disruption, change	Self-care, self-confidence, self-awareness, creativity, flexibility, hardiness, hope, resourcefulness, optimism, emotional insight, emotional intelligence, positive outlook	Interviews	Increased assertiveness at work, more supportive communication, closer group dynamic, increased collaborative capitol, empowerment, increased job satisfaction, increased retention
Zander & Hutton (2013)	Australia	Qualitative	Stress, negative situations, adversity, loss, hardship	Experience personal and professional, realistic view, self-care, personal rituals, emotional management and expression, talking, problem solving, effective support, insight, reflection, positive attitude	Interviews	Developing from past experiences, ability to overcome negative situations, use knowledge and adapt to new situations
Hart et al. (2014)	USA	Integrative review	Adversity	Hardiness, self-efficacy, hope, optimism, collegial support, humour, positive thinking, engaging in extracurricular activities,	N/A	Staff retention, ability to overcome challenge obstacles, increased quality of life, better health, effective use of

				positive organisational culture in the workplace		adaptive coping strategies
Mealer et al. (2014)	USA	Mixed methods	Trauma, stress	Positive support systems, optimism, faith, cognitive flexibility and self-care	Connor-Davidson Resilience Scale (Connor & Davidson, 2003), written exposure sessions	Mitigating the development of common maladaptive psychological symptoms
Wei & Taormina. (2014)	China	Quantitative	Stressors, adversity	Determination, endurance, adaptability, recuperbility, conscientiousness, work-life balance, higher educational levels, good financial resources (income), physical wellness, Chinese values, future orientation	Authors newly created resilience measure	Career success
Cline. (2015)	USA	Discussion paper	Adversity, stress	Being realistic, self-acceptance, hardiness, courage, collegial support, continued learning, willingness to fail, optimism, positivity, emotional intelligence, self-care, work-life balance	N/A	Longevity, success, enhanced collegial relationships and leadership capabilities, protect emotional and physical health, reduced absenteeism, increased job satisfaction, improved nurse retention, patient

						safety and quality outcomes
Dyess et al. (2015)	USA	Qualitative	Adversity	Self-care, fostering relationships, work-life balance, reflection, accountability, finding meaning and learning in all situations	Interviews	Staff retention, positive adaptation to change
Gillman et al. (2015)	Australia	Systematic review	Stressors	Work-life balance, self-awareness, self-esteem, realistic expectations, optimism, humour, support	N/A	Ability to thrive, coping, job satisfaction
Hegney et al. (2015)	Australia	Quantitative	High level stressors, adversity	Mindfulness, self-efficacy, adaptive coping behaviours	Connor-Davidson Resilience Scale (Connor & Davidson, 2003)	Improved compassion satisfaction
Itzhaki et al. (2015)	Israel	Quantitative	Stress, workplace violence	Group resilience, collegial support	Connor-Davidson Resilience Scale (Connor & Davidson, 2003)	Higher staff resilience associated with increased life satisfaction
Kim et al. (2015)	Korea	Qualitative	Adversity	Work-life balance, positive thinking, flexibility, assuming responsibility, self-esteem, family support	Interviews	Positive coping
Leverence. (2015)	USA	Brief discussion paper	Adversity, stressors	Optimism, mindfulness, social support, spiritual practices, realistic	N/A	Reduce burnout, prevent compassion

				outlook, self-care, mentorship, self-reflection, humour		fatigue, improved patient care
Rushton et al. (2015)	USA	Quantitative	Stress	Hope, self-efficacy and coping, external activities such as developing problem-solving skills or engaging in work, prayer, exercise, play, or art	Connor-Davidson Resilience Scale (Connor & Davidson, 2003)	Protection from emotional exhaustion and increased personal accomplishment, reduced stress
Shimoinaba et al. (2015)	Japan	Qualitative	Negative situations or adversity	Self-nurturing, self-awareness, accepting professional limitations, validating care (receiving feedback), coping adaptively, support from others	Face to face in-depth interviews	High quality care for patients and families, a sense of mastery, effective coping skills
Turner & Kaylor. (2015)	USA	Conceptual framework	Adversity, stressors	Social support, positive professional relationships, work-life balance, reflection, emotional control, exercise, humour, spirituality, self-care	N/A	Overcome adversity, embrace change, maintenance of health/well-being
Brown et al. (2016)	Australia	Systematic review	Acute or chronic threats to personal wellbeing, stressors, adversity	Passion for work, engaging in professional development, maintaining a work-life balance, good social supports	N/A	Enable a sustainable workforce, sense of empowerment, cope better with work stressors, achieve optimal patient outcomes
Cope et al. (2016a)	Australia	Qualitative	Adversity, negative effects of workforce	Self-control, self-efficacy, optimism, hope, leadership, valuing social	Field notes, memos, gesture	Positive adaptation, ability to cope, maintenance of

			challenge and stress	support, humour, emotional endurance, positive attitudes, self-set goals, self-motivation, perseverance	drawings and interviews	normal function, resist and absorb the impact of events, remain working, perform care, advocate, teach
Cope et al. (2016b)	Australia	Qualitative	Adversity	Self-control, self-care, emotional intelligence, staying positive, reflection, hope, humour, valuing social support, paying it forward (undertaking acts of kindness), passion for the profession, taking on challenges, pride, perseverance, experiencing adversity and growing through it, good leadership	Interviews	Positive change and adaptation, perform effectively, retain nurses, protect nurses
Cope et al. (2016c)	Australia	Qualitative	Workplace adversity	Self-control, self-care, reflection, hope, humour, positivity, work-life balance, strong social networks (family, friends & colleagues), professional pride, sense of purpose, enjoyment in taking on a challenge, optimism	Interviews	Ability to survive and thrive, positive adjustment, sustain wellbeing, job satisfaction, staff retention, improved patient safety outcomes
Craigie et al. (2016)	Australia	Quantitative	Stress, adversity,	Self-efficacy, positive coping	Connor-Davidson	Adaptive coping to stress

			trauma, tragedy, threats		Resilience Scale (Connor & Davidson, 2003)	
Cusack et al. (2016)	Australia, Brazil, China	Theoretical model	Adversity	Self-efficacy, coping, mindfulness	N/A	Staff retention, quality patient care, reduction of burnout, compassion fatigue and workplace distress
Hsieh et al. (2016)	Taiwan	Quantitative	Workplace violence, traumatic events, adversity	Extraversion, peer support, work-life balance	The Resilience Scale for Adults (Friborg et al., 2003)	Maintenance of equilibrium, positive coping
Hudgins. (2016)	USA	Quantitative	Adversity	Optimism, self-confidence, work and personal support networks, empowerment, spirituality/sense of purpose, self-awareness	Connor-Davidson Resilience Scale (Connor & Davidson, 2003)	Increased job satisfaction, retention
Kutluturkan et al. (2016)	Turkey	Quantitative	Stressors	Having children, higher educational level, social support resources, age (older)	The Resilience Scale for Adults (Friborg et al., 2003)	Increased personal accomplishments, prevent burnout and emotional exhaustion
Lim et al. (2016)	Singapore	Quantitative	Adversity, change or risk	Self-efficacy, communication skills	The Resilience Scale (Wagnild & Young, 1993)	Reduction in stress, improve patient care
McDonald et al. (2016)	Australia	Qualitative	Workplace adversity	Collegial support, support from family and friends,	Interviews	Job satisfaction, feelings of

				self-care, self-motivation, autonomy, optimism, self-efficacy, confidence		competence, improve patient care, reduced stress, potential career advantage
Tubbert. (2016)	USA	Qualitative	Stress, adversity	Flexible and creative thinking, decisiveness, tenacity, interpersonal connectedness (social supports), honesty, self-control, optimism	Interviews	Ability to cope with stress, engaged workforce, increased job satisfaction
Williams et al. (2016)	Canada	Quantitative	Adverse events, stress	Self-efficacy, hope, coping, competency, hardiness	The Resilience Scale for Adults (Friborg et al., 2003)	Better quality of care, increased respect for patients
Brennan. (2017)	UK	Discussion paper	Adversity	Self-confidence, resourcefulness, curiosity, self-discipline, level-headedness, flexibility, problem solving ability, emotional stamina, intelligence and a strong sense of self	N/A	Positive adaptation and coping, assists nurses to deliver high-quality care and succeed professionally
Delgado et al. (2017)	Australia	Integrative review	Challenging circumstances or adversity	Optimism, sense of purpose, faith/belief, sense of self, empathy, insight, self-care, hope, self-efficacy, adaptability, emotional intelligence	N/A	Reduction in workplace stress, prevent negative, psychosocial outcomes, increased wellbeing
Gao et al. (2017)	China	Quantitative	Adversity, trauma	Social support, confidence	Connor-Davidson Resilience Scale (Connor &	Reduction in negative psychological outcomes, higher

					Davidson, 2003)	general well-being, positive adaptation
Guo et al. (2017)	China	Quantitative	Workplace adversity	Self-efficacy, education, positive coping style, lifestyle i.e. cigarette use and exercise (non-smokers had higher resilience levels, those who exercised had higher resilience)	Connor-Davidson Resilience Scale (Connor & Davidson, 2003)	Positive adaptation, increased job satisfaction
Hsieh et al (2017)	Taiwan	Quantitative	Adversity	Higher level of education, seniority, extraversion, family support, peer support	The Resilience Scale for Adults (Friborg et al., 2003)	Ability to deal with violent events, improve safety and sense of well-being
Lanz et al. (2017)	USA	Quantitative	Adversity	Positive emotions, emotional control	The Resilience Scale (Wagnild & Young, 1993)	Ability to bounce back after experiencing conflict in the workplace, reduction in negative effects of social stressors
Marie et al. (2017)	Palestine	Qualitative	Adversity	Facing challenges, being steadfast, commitment, religion, love for the profession, supportive relationships (family, friends), supportive managers and colleagues, education, sense of purpose, experience, tenacity, self-confidence	Interviews and observational data	Successful coping skills
Mealer et al. (2017)	USA	Quantitative	Adversity	Optimism, humour, engaging the support of	Connor-Davidson	Reduced risk of PTSD

				others, personal competence, leadership, perseverance	Resilience Scale (Connor & Davidson, 2003)	
Prosser et al. (2017)	Canada	Qualitative	Adversity	Having a vast perspective, having realistic expectations, expert of self (self-nurturance and self-awareness), clarity in belief systems, being present through staying awake	Face to face semi-structured interviews	Ability to thrive and provide care
Wang et al. (2017)	China	Quantitative	Adversity, stress, trauma, threat, deprivation	Friend and co-worker support, self-efficacy, positive work climate, tenacity, strength, optimism	Connor-Davidson Resilience Scale (Connor & Davidson, 2003)	Reduce turnover
Zheng et al. (2017)	Singapore	Quantitative	Workplace stress	Age (older), experience (more years), higher education levels, religion, work-life balance	The Resilience Scale (Wagnild & Young, 1993)	Increased job satisfaction, staff retention, adaptive behaviour
Ang et al. (2018)	Singapore	Quantitative	Adversity	Being married or having been married in the past, older age, more years of experience, higher educational levels, self-efficacy	Connor-Davidson Resilience Scale (Connor & Davidson, 2003)	Retention of nurses
Brown et al. (2018)		Literature Review	Adversity	Optimism, self-efficacy, hope, flexibility	N/A	Reduction in negative psychological outcomes

Foster et al. (2018)	Australia	Qualitative	Adversity, workplace stressors	Peer support, organisational support, education, reflection	Focus groups and interviews	Reduction on negative psychological outcomes, improved patient care, increased job satisfaction, increased self-esteem
Foster et al. (2018)	Australia	Quantitative	Adversity, stressors	Education, good relationships, interpersonal and communication skills	Workplace Resilience Inventory (McLarnon & Rothstein, 2013)	Reduction in negative psychological outcomes, increased well-being
Slatyer et al. (2018)	Australia	Qualitative	Adversity, trauma, tragedy, threats or significant sources of stress	Mindfulness, self-care	Interviews	Staff retention, reduction in negative psychological outcomes
Slatyer et al. (2018)	Australia	Quantitative	Adversity, trauma, tragedy, threats or significant sources of stress	Mindfulness, self-care, social support	Connor-Davidson Resilience Scale (Connor & Davidson, 2003)	Reduced burnout and depressed mood, improved compassion satisfaction and quality of life
Babanataj et al. (2019)	Iran	Quantitative	Adversity, difficulties and hardships of life and occupation	Education and training, internal and external supports		Positive adaptation, personal promotion and growth, reduction in occupational stress

Chapter 3. Nurse Resilience for Clinical Practice: An Integrative Review

3.1 Introduction

With the exploration of the concept of nurse resilience completed and a working definition established it is important to critically review the research which has contributed to our understanding and knowledge of nurse resilience. An integrative review of the literature was conducted and a copy of the manuscript that was accepted for publication in the *Journal of Advanced Nursing* is presented in this chapter (Cooper et al., 2021), followed by an update of the literature search to January 2021. The chapter concludes with a justification for the original research conducted for this study.

The integrative review was undertaken following the methodology described by Whittemore and Knafl (2005) which allowed for the evaluation of diverse methodologies and the synthesis of both quantitative and qualitative data. Due to the lack of clarity around the use of the term "resilience" in the wider literature the working definition arrived at through the concept analysis (Cooper et al., 2020) was not applied to the inclusion criteria for the review. This was because the definition derived through the concept analysis had the potential to eliminate relevant literature from the review.

The aim of the integrative review was to evaluate and synthesise research that has investigated nurse resilience. The review sought to understand what nurses' feel affects their resilience, their experiences, and how resilience (or a lack of) can impact individual nurses, patients, and employers. The following question was developed to guide the review: What is reported about the influences and associations regarding nurse resilience?

Reference:

Cooper, A. L., Brown, J. A., & Leslie, G. D. (2021). Nurse resilience for clinical practice: An integrative review. *Journal of Advanced Nursing*. doi:10.1111/jan.14763

3.2 Published Integrative Review

In accordance with the journal's copyright rules, the accepted version of the manuscript is presented below. Supplementary materials relating to the manuscript are included at the end of this chapter.

Nurse Resilience for Clinical Practice: An Integrative Review

ABSTRACT

Aim
To evaluate and synthesise research that has investigated nurse resilience, in order to develop an understanding of what nurses' feel affects their resilience, their experiences, and how resilience can impact individual nurses, patients and employers.

Design
Integrative review.

Data Sources
CINHAL, MEDLINE and PSYCHINFO, searched from the date each database was available to July 2019.

Review Methods
Primary research studies explicitly investigating resilience in any type of licensed nurse were eligible for inclusion. Studies were critically appraised for methodological quality using the Joanna Briggs Institute Quality Appraisal Framework. Data from each study were abstracted, coded and themes were identified according to the review aims and key findings of each study.

Results
Twenty-seven studies met the inclusion criteria. Eight sub-themes and three main themes were identified; The Resilient Nurse, Nurses' Experiences of Resilience, Employment Conditions and Nurse Resilience.

Conclusion
Nurse resilience is a complex and dynamic process, high levels of resilience are associated with reduced psychological harm and increased wellbeing. Attempts to determine the characteristics of the resilient nurse have been inconclusive and research has predominately focused on individual factors which could affect resilience, with minimal research exploring external factors which affect nurse resilience including work environment and conditions.

Nursing work was characterised by adversity and nurses described the development and use of strategies to maintain their resilience.

Impact
This review found individual factors have received most attention in research investigating nurse resilience. Findings suggest nurse resilience protects against negative psychological outcomes and nurses independently develop and use strategies to manage adversity. Factors in the workplace which affect resilience are under-researched and addressing this gap could assist with the development of comprehensive interventions and policies to build and maintain nurse resilience.

Keywords: Resilience, nurse, adversity, literature review, integrative review, strategies, workplace

INTRODUCTION

Nursing has long been recognised as a challenging career and the psychological consequences nurses can experience as a result of their work are well-known and include anxiety, depression and burnout (Happell et al., 2013; Hegney, Rees, et al., 2015). In recognition of this, nurse resilience has gained increasing attention. Interest in resilience is important in the context of projected nursing shortages and issues with retaining nurses in the profession (Chung & Fitzsimons, 2013; Drennan & Ross, 2019; World Health Organisation, 2016). Attention has been paid to why some individuals are able to positively adapt to stressors and avoid psychological harm despite being subject to adversity in the workplace. Many attributes are believed to bolster nurse resilience including self-efficacy, optimism and social supports (Cooper et al., 2020). These have been reported in qualitative research studies where nurses' experiences have been explored (Ablett & Jones, 2007; Cameron & Brownie, 2010) and quantitative research studies which have sought to measure resilience and test for associations (Gillespie et al., 2009; Mealer et al., 2012). Interventions have been developed aiming to build individual nurse resilience including stress management programs and resiliency training (Babanataj et al., 2019; Craigie et al., 2016). Given the volume of literature emerging about nurse resilience it is important to understand research findings to date, how these can be applied, and to identify areas for future research.

BACKGROUND

The origins of research into resilience lie in the discipline of psychology which has influenced research exploring nurse resilience. Definitions of resilience are offered in the literature with widespread agreement that resilience is vital for nurses to prosper at work (Aburn et al., 2016). These definitions commonly centre around positive adaptation and successful coping (Fletcher & Sarkar, 2013), with resilience considered to be multi-faceted, affected by internal and external factors, varying over time and context (Connor & Davidson, 2003). In a recent concept analysis we defined nurse resilience as '… a complex and dynamic process which when present and sustained enables nurses to positively adapt to workplace stressors, avoid psychological harm and continue to provide safe, high-quality patient care' (Cooper et al., 2020, p. 15). The term hardiness is sometimes used interchangeably with resilience (Earvolino-Ramirez, 2007; Zander et al., 2013). Hardiness is considered to be an attribute of resilience (Connor & Davidson, 2003) and the two terms are closely related.

Interest in nurse resilience represents a move to address negative outcomes which can affect nurses, with the potential to prevent individual problems such as post-traumatic

stress disorder (PTSD), anxiety and depression (Hegney, Rees, et al., 2015; Mealer et al., 2012). Boosting individual resilience is also seen as a potential solution to organisational issues such as retaining nurses and combatting staff shortages (Mills et al., 2017; Yu & Lee, 2018). Concerns have been raised that this focus, on the individual, is being cited as a panacea for workforce issues and places responsibility for dealing with the rigours of nursing work on individuals (Taylor, 2019; Traynor, 2017; Virkstis et al., 2018) without due consideration of work environment and conditions.

THE REVIEW

Aim

To evaluate and synthesise research that has investigated nurse resilience. We sought to understand what nurses' feel affects their resilience, their experiences, and how resilience (or a lack of) can impact individual nurses, patients and employers. The following question was developed to guide the review: What is reported about the influences and associations regarding nurse resilience?

Design

The integrative review methodology described by Whittemore & Knafl (2005) was used due to the inclusive nature of the design, allowing for evaluation of diverse methodologies and the ability to synthesise both quantitative and qualitative data. Consistent with this approach, five stages of review, problem identification (established through introduction, background and aim), literature search, data evaluation, data analysis and presentation were undertaken.

Search methods

Research studies were identified by searching databases (literature search stage) and scanning reference lists of articles applying a systematic approach consistent with PRISMA guidelines (Moher et al., 2009). The following databases were searched; CINHAL, MEDLINE and PSYCHINFO from the date each was available to July 2019, search limits applied were; full text, English language, peer-reviewed. Key search terms were resilienc* OR hardiness AND nurs*. Given the varied use of resilience definitions and interchangeable use of hardiness in the literature any definition of either term was acceptable for the purpose of the review. Inclusion criteria captured qualitative, quantitative and mixed methods research studies explicitly investigating resilience in any type of licensed nurses with any educational level published in peer-review journals. Exclusion criteria were studies focusing on student nurses or their undergraduate education, other health professionals[1], articles focusing on nurses in non-direct care roles, resilience of / in patients or carers / medical conditions / vulnerable populations, review and discussion papers or conference abstracts, or where ethical approval was not evident.

Search outcome

The initial search identified 1163 publications; 525 were duplicates leaving 638 for possible inclusion (Figure 1). Titles of the remaining publications were reviewed and 552 were excluded. This left 86 publications for abstract review, following which a further 22 were

[1] Due to similarities between nursing and midwifery in many countries, papers describing both disciplines were eligible for inclusion if it was possible to extract nursing specific data from the study results

excluded leaving 64 articles for full text review after which a further 12 publications were excluded leaving 52 studies for quality appraisal.

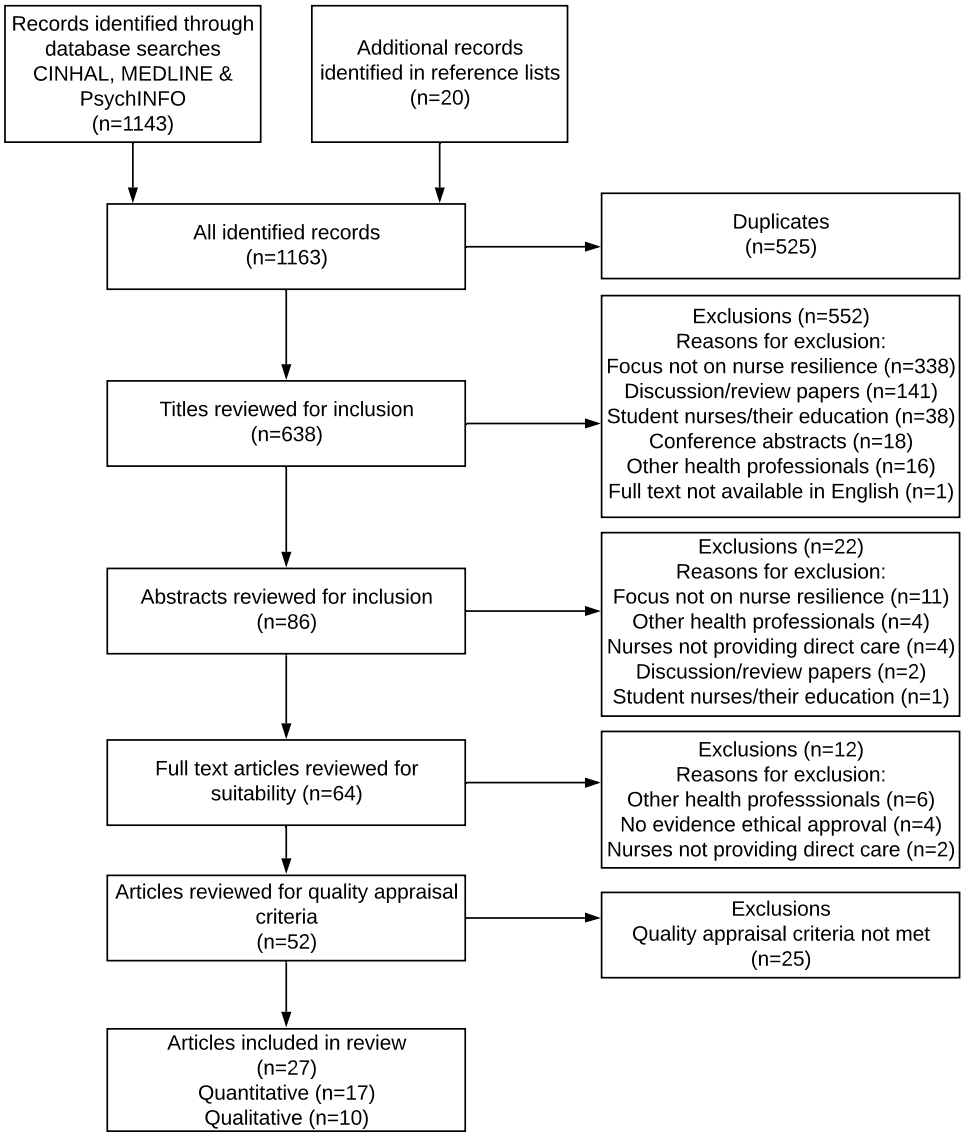


Figure 1. Nurse Resilience literature search flow diagram: adapted from Moher et al., (2009)

Quality appraisal

The data evaluation stage was completed using the Joanna Briggs Institute (JBI) Quality Appraisal Framework (2017). Studies which met inclusion criteria based on title and abstract review were read independently in full by two authors to confirm eligibility and to conduct quality appraisal for methodological quality using the appropriate JBI (2017) quality appraisal tools. Four tools were used namely the checklists for analytical cross sectional studies, for qualitative research, for quasi-experimental studies (non-randomised experimental studies), and for randomised controlled trials (JBI, 2017). There is no specific tool to evaluate descriptive studies so the checklist for analytical cross-sectional studies was adapted to review descriptive studies. Mixed methods studies were appraised in two parts using an appropriate quantitative checklist and the checklist for qualitative research. Quality appraisal criteria were discussed and consensus reached upon which criteria were essential

and any modifications and considerations in the assessment of criteria for each tool. To be included in the review, studies had to meet all essential criteria and be within two points of the total achievable score (Supplementary Tables 2-5). Where criterion were not applicable to a particular study the total achievable score was reduced. The level of evidence for included studies was assessed using the JBI (2014) levels of evidence tool (Table 1 – see supplementary material). Quantitative studies were assessed using the JBI level of evidence for effectiveness and qualitative studies were assessed using the JBI level of evidence for meaningfulness (Supplementary Table 6). Following quality appraisal, a further 25 publications were excluded which did not meet the required level of quality, leaving a total of 27 for review.

Data abstraction and synthesis

Identifying themes is central to the data abstraction and synthesis process for integrative reviews (Whittemore & Knafl, 2005). Data from each study were abstracted, coded and themes were identified (data analysis stage) according to the review aims and key findings of each study. To provide rigour a structured approach to thematic analysis was undertaken using Braun & Clarke's (2006) six phases of thematic analysis (Table 2). This framework can be adapted and used for various data sets including literature reviews (Snyder, 2019).

Table 2. Data abstraction and synthesis adapted from Braun & Clarke (2006)

Phase of Analysis (Braun & Clarke, 2006)	Action
Phase 1: Familiarising yourself with the data	• Each included study re-read following the quality appraisal process • A summary of each study and its key findings extracted and displayed in a table (Table 1- see supplementary material)
Phase 2: Generating initial codes	• Initial codes generated from display table
Phase 3: Searching for themes	• Looked for similarities of concepts within codes • Grouped codes together into initial themes
Phase 4: Reviewing themes	• Compared and contrasted initial themes for similarities • Re-coding • Discussion of themes by researchers
Phase 5: Defining and naming themes	• Essence of each theme identified • Detailed analysis of each theme written • Reflected upon themes against study aims • Scope of each theme determined • Theme names finalised (Figure 2)
Phase 6: Producing the report	• Findings written up with supporting evidence of themes within the data

RESULTS

Included studies

The 27 included studies (Table 1 – see supplementary material) were published over a 12-year period, 2007-2019. Seventeen were quantitative and 10 were qualitative. Studies originated in 11 countries with the majority from Australia (9) and the United States of America (6). Sample sizes ranged from seven to 1061 participants (qualitative studies 7 - 29, quantitative studies 30 – 1061). Sixteen quantitative studies were observational utilising self-report surveys which included resilience measures (Table 2). One quantitative study (Babanataj et al., 2019) evaluated a resiliency training program using a pre/post-test design. Eight qualitative studies explored nurse resilience in the context of participants' usual work environment. Two qualitative studies explored nurses' experiences of participating in resilience interventions (Foster, Cuzzillo, et al., 2018; Slatyer, Craigie, Rees, et al., 2018). Semi-structured interviews were the most common form of data collection.

Themes

The data abstraction and synthesis process were drawn from the included articles (Table 1) resulting in the generation of 15 codes that were refined into eight sub-themes and finally three main themes (Figure 2). The themes and sub-themes were derived from the quantitative findings and/or the qualitative findings each article reported, and were discussed and agreed upon by all authors. The development of the three themes: *The Resilient Nurse*, *Nurses' Experiences of Resilience*, *Employment Conditions and Nurse Resilience* and their subthemes are presented below (presentation stage).

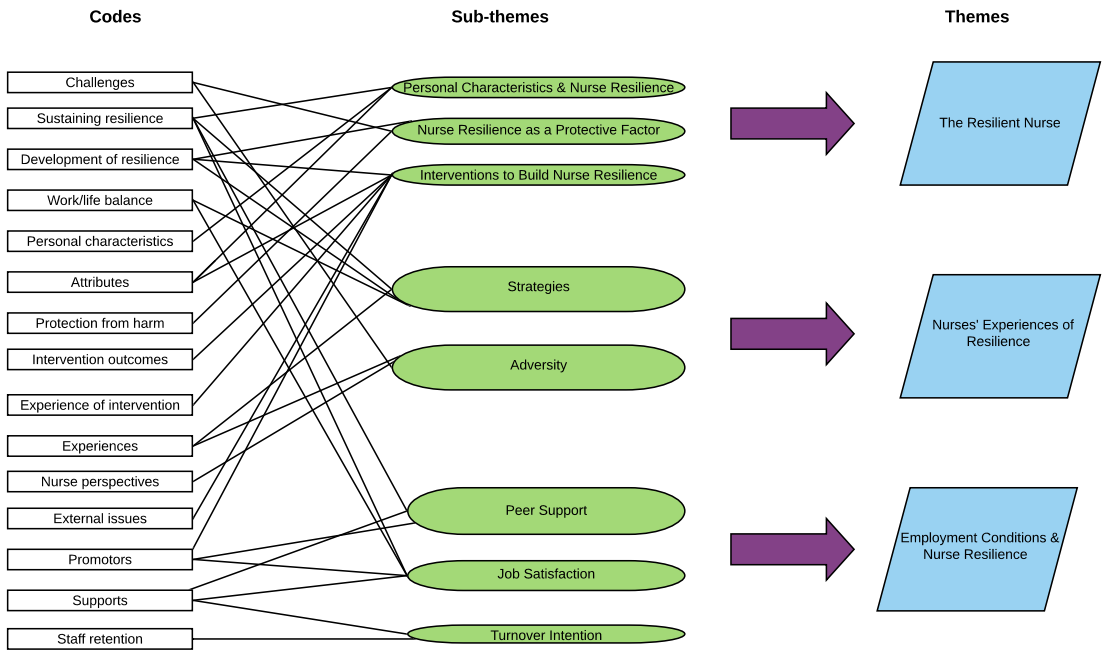


Figure 2. Codes, sub-themes and themes

Theme 1: The Resilient Nurse

Associations and relationships between nurse resilience and other variables such as personal characteristics and psychological measures have been researched to gain an understanding of how resilience (or a lack of) can impact individual nurses. There have been attempts to

ascertain which personal characteristics promote resilience, investigations into psychological harm and wellbeing, and interventions developed which aim to increase nurse resilience. Sixteen quantitative studies tested associations between resilience and other variables, eleven of which investigated a specific speciality and five studied hospital nursing populations. Resilience interventions were the focus of three studies.

Sub-theme 1a: Personal Characteristics and Nurse Resilience

Six studies investigated associations between personal characteristics and resilience levels with mixed results (Gillespie et al., 2009; Gillespie et al., 2007; Guo et al., 2017; Hsieh et al., 2016; Mealer et al., 2017; Zheng et al., 2017). Significant positive associations were found between age and resilience levels (Gillespie et al., 2009; Zheng et al., 2017), higher levels of education and resilience levels (Guo et al., 2017), and years of experience and resilience (Gillespie et al., 2009; Mealer et al., 2017; Zheng et al., 2017). Conversely, in an earlier study Gillespie et al., (2007) found age and experience did not significantly explain resilience. Two studies found no significant association between resilience levels and level of education (Gillespie et al., 2009; Gillespie et al., 2007). One study found higher income, being a non-smoker and exercising had significant and positive associations with resilience (Guo et al., 2017). The association between resilience levels and personality traits extraversion, introversion and neuroticism were investigated in a study of Taiwanese emergency department (ED) nurses (Hsieh et al., 2016). Higher levels of extraversion were positively and significantly associated with higher resilience levels whereas neuroticism was significantly associated with lower resilience levels.

Sub-theme 1b: Nurse Resilience as a Protective Factor

Evidence from five studies suggest resilience could be a protective factor associated with reduced psychological harm (Cho & Kang, 2017; Manzano García & Ayala Calvo, 2012; Mealer et al., 2012) and/or positive outcomes in nurses (Abdollahi et al., 2014; Gao et al., 2017). This includes protection against clinical diagnoses/symptoms including PTSD (Cho & Kang, 2017; Hsieh et al., 2016; Mealer et al., 2012), burnout (Mealer et al., 2012), emotional exhaustion (Manzano García & Ayala Calvo, 2012) and symptoms of anxiety and depression (Mealer et al., 2012). One study explored personality traits in the context of nurse resilience in Korean ICU nurses (Cho & Kang, 2017) and found resilience had a mediating effect in relation to Type D personality, which is characterised by frequency of depressive, anxious and social isolation traits, and post-traumatic symptoms. Higher resilience levels were predictive of positive outcomes including happiness (Abdollahi et al., 2014), general wellbeing (Gao et al., 2017), mental health (Gao et al., 2017) and lower levels of perceived stress (Abdollahi et al., 2014).

Sub-theme 1c: Interventions to Build Nurse Resilience

Associations between high resilience levels and lower incidences of negative psychological outcomes led to recommendations for targeted interventions to be developed and implemented which aimed to boost individual resilience. A range of interventions have been developed and tested including stress management and resiliency training, however only three studies met inclusion and quality criteria for this review. The included studies comprise one quasi-experimental study with a resiliency training program utilising a pre and post-test design (Babanataj et al., 2019), one qualitative study exploring nurse experience of participating in a mindfulness-based self-care resiliency intervention (Slatyer, Craigie, Rees, et al., 2018) and one qualitative study exploring nurse and facilitator experience of a multimodal resilience program (Foster, Cuzzillo, et al., 2018).

In a study of 30 Iranian ICU Nurses, participants' resilience levels and occupational stress were measured prior to resilience training (Babanataj et al., 2019), and again two weeks later, longer-term follow up was not pursued. Participant resilience levels significantly increased and occupational stress levels significantly decreased. Two small Australian qualitative studies explored participants' experiences of taking part in short-term resilience interventions (Foster, Cuzzillo, et al., 2018; Slatyer, Craigie, Rees, et al., 2018). Participants in both studies described benefits of the interventions, including improved ability to cope with workplace stress, ability to think more clearly, improved emotional regulation, and increased emphasis on the importance of self-care and wellbeing. There were also challenges reported in both studies, including difficulties in nurses getting away from clinical environments to attend workshops, the mix of some participant groups where junior and senior staff placed together impeded open discussion, and the need for long-term support and engagement to sustain strategies taught during the intervention (Slatyer, Craigie, Rees, et al., 2018) and acknowledgement that the intervention did not address causes of stress, only participants' response to stressors (Foster, Cuzzillo, et al., 2018).

Theme 2: Nurses' Experiences of Resilience

Nursing work and nurses' workplaces are characterised by adversity, and nurses actively develop and use strategies to manage this adversity and stress. Included studies predominately focus on a single speciality and how nurses manage the challenges of a particular clinical setting such as working in palliative care (Ablett & Jones, 2007), aged care (Cameron & Brownie, 2010), haemodialysis (Dolan et al., 2012), burns (Kornhaber & Wilson, 2011), mental health (Marie et al., 2017), emergency (Tubbert, 2016) and paediatric oncology (Zander et al., 2013).

Sub-theme 2a: Adversity

Descriptions of the challenges encountered at work featured strongly in the included articles. Across the wide range of clinical settings where nurse resilience has been investigated adversity was a constant feature. The work environment of participants in acute hospital settings was described as '… an adverse environment of complexity and unpredictability' (Hodges et al., 2010, p. 85). Participants encountered a variety of challenges some of which reflected the nature of nursing work including; death and dying (Ablett & Jones, 2007; Hodges et al., 2010; Zander et al., 2013), workplace violence (Dolan et al., 2012; Foster, Cuzzillo, et al., 2018), and the trauma of caring for extremely unwell or deteriorating patients (Kornhaber & Wilson, 2011; Zander et al., 2013). Participants recognised the need for resilience to manage the adversity of nursing practice and described how resilience was shaped by past experiences (Ablett & Jones, 2007; Cameron & Brownie, 2010; Hodges et al., 2010; Kornhaber & Wilson, 2011; Marie et al., 2017; Zander et al., 2013).

Sub-theme 2b: Strategies

As a result of persistent adversity at work, participants in eight studies reported independently adopting a range of strategies to manage stress and maintain resilience. For burns nurses (Kornhaber & Wilson, 2011) and haemodialysis nurses (Dolan et al., 2012) the notion of emotional distancing and emotional detachment were important strategies to protect nurses and maintain resilience. A participant working in haemodialysis described *'I learned I can't get emotionally involved …I think it's really important if you're working in this field that you learn to clearly, very clearly… separate'* (Dolan et al., 2012, p. 228). Similarly, in palliative care nurses (Ablett & Jones, 2007) maintaining professional boundaries was identified as an important strategy as described by one participant: *'I had my uniform on, I was a nurse behind this barrier'* (Ablett & Jones, 2007, p. 737). Conversely, for aged care

nurses having close relationships and sharing experiences with aged care residents was viewed as a source of resilience because *'… in a RACF there is continuity and there is a depth that comes from being able to provide holistic care'* (Cameron & Brownie, 2010, p. 68) .

The importance of self-care was widely recognised in sustaining resilience. Participants reported a number of ways to achieve this, including exercise, diet and getting sufficient rest (Cameron & Brownie, 2010; Kornhaber & Wilson, 2011; Tubbert, 2016; Zander et al., 2013), finding and maintaining an acceptable work-life balance (Ablett & Jones, 2007; Cameron & Brownie, 2010; Dolan et al., 2012; Hodges et al., 2010; Tubbert, 2016), developing and maintaining good social supports in and outside the workplace (Ablett & Jones, 2007; Cameron & Brownie, 2010; Kornhaber & Wilson, 2011; Marie et al., 2017; Tubbert, 2016; Zander et al., 2013), humour (Ablett & Jones, 2007; Cameron & Brownie, 2010) and finding the positive when faced with workplace stress (Kornhaber & Wilson, 2011; Tubbert, 2016). A comparison of how inexperienced and experienced nurses negotiated challenges in acute care settings found differences between the two groups (Hodges et al., 2010). Experienced nurses had well developed strategies and actively sought workplaces which fit their personal values and philosophy of care. Whereas inexperienced nurses had fewer strategies and were consciously struggling to find a place within the profession (Hodges et al., 2010).

Theme 3: Employment Conditions and Nurse Resilience

Workplace conditions which could affect nurse resilience featured strongly in qualitative studies and have begun to be investigated objectively in quantitative research. Fourteen studies explored the influence of work-related variables on nurse resilience with peer support (Ablett & Jones, 2007; Cameron & Brownie, 2010; Hodges et al., 2010; Hsieh et al., 2016; Kornhaber & Wilson, 2011; Tubbert, 2016; Wang et al., 2018; Zander et al., 2013), job satisfaction (Ablett & Jones, 2007; Dolan et al., 2012; Matos et al., 2010; Zheng et al., 2017), and turnover intention (Mills et al., 2017; Yu & Lee, 2018) receiving most attention. Other contextual influences reported included; issues with skill mix (Ablett & Jones, 2007; Zander et al., 2013), staff shortages (Ablett & Jones, 2007; Cameron & Brownie, 2010; Foster, Cuzzillo, et al., 2018), conflict in the workplace (Dolan et al., 2012; Hodges et al., 2010; Zander et al., 2013), shift work (Ablett & Jones, 2007; Zander et al., 2013), workplaces facilitating work-life balance (Dolan et al., 2012; Hodges et al., 2010), the amount of time between shifts (Kornhaber & Wilson, 2011), working in a hospital where staff felt cared for (Hodges et al., 2010), poor relationships with immediate managers (Hodges et al., 2010) and nurses' professional status (Matos et al., 2010).

Sub-theme 3a: Peer Support

Peer support featured strongly with six qualitative studies and two quantitative studies reporting on the influence of peer support on resilience. The qualitative research indicated peer support as an important factor which participants felt promoted their resilience (Ablett & Jones, 2007; Cameron & Brownie, 2010; Hodges et al., 2010; Kornhaber & Wilson, 2011; Tubbert, 2016; Zander et al., 2013). Two quantitative studies measured and explored the relationship between peer support and resilience (Hsieh et al., 2016; Wang et al., 2018). In Taiwanese ED nurses (Hsieh et al., 2016) peer support was found to enhance resilience. Similarly, in a study of early-career hospital-based Chinese nurses (Wang et al., 2018) peer support had a significant and positive association with self-efficacy and tenacity. Self-efficacy was demonstrated through structural modelling to have a positive and significant effect on resilience levels, indicating an indirect effect.

Sub-theme 3b: Job Satisfaction

Job satisfaction and resilience were explored in four studies. Two quantitative descriptive studies investigated resilience and job satisfaction in psychiatric nurses in America (Matos et al., 2010) and Singapore (Zheng et al., 2017). Both studies found positive and significant associations between job satisfaction and resilience. The importance of job satisfaction in relation to resilience has also been highlighted in qualitative research, with participants working in aged care describing resilience as being fostered by the degree of satisfaction achieved in being able to provide skilled holistic care (Ablett & Jones, 2007). Similarly, renal nurses felt resilience was bolstered by making a difference to patients and enjoyment of work (Dolan et al., 2012). Resilience was found to be predictive of self-perceived quality of care in North American long-term care nurses (Williams et al., 2016).

Subtheme 3c: Turnover Intention

The influence of resilience on turnover intention was investigated in two quantitative studies which focused on early-career nurses (Mills et al., 2017; Yu & Lee, 2018). The investigation of turnover intention as an important organisational issue rather than as a result of individual maladjustment alone was emphasised by Yu & Lee (2018). While a number of studies have previously linked turnover intention to work environment, job satisfaction, burnout and emotional labour, Yu & Lee (2018) sought to explore the influence of resilience and job involvement on turnover intention. In South Korean nurses (Yu & Lee, 2018) turnover intention was negatively correlated with resilience. Similarly in Australian nurses resilience and intention to stay were moderately correlated (Mills et al., 2017).

DISCUSSION

The aim of this review was to evaluate and synthesise research that has investigated nurse resilience to identify what may influence nurse resilience and associations of nurse resilience. This has been investigated in a variety of ways; with qualitative research exploring the perspective of nurses who highlighted workplaces characterised by adversity and factors beyond the individual, whereas quantitative research has examined associations with nurse resilience and resilience interventions and contributed to investigating work influences on resilience. Included studies were predominantly descriptive quantitative research and qualitative research graded at JBI evidence levels 3 and 4 (JBI, 2014). Associations of nurse resilience are largely unknown and there is little evidence regarding the impact of nurse resilience on employers and patients. Outcomes linked to individual resilience are evident in the literature, indicating high levels of resilience are associated with protection from negative psychological outcomes and increased wellbeing (Theme 1).

Whilst the three themes help form an understanding of the current body of research, they reveal more is unknown about nurse resilience than is known. There is evidence to suggest resilience is an important protective factor for nurses (Theme 1) (Cho & Kang, 2017; Manzano García & Ayala Calvo, 2012; Mealer et al., 2012). Although possession of higher resilience levels is associated with desirable outcomes, the factors which contribute to high or low resilience levels are unclear. Attempts to determine the personal characteristics of the resilient nurse have been inconclusive. At this stage the relationship between age, experience, educational attainment and resilience levels are mixed (Gillespie et al., 2009; Gillespie et al., 2007; Guo et al., 2017; Mealer et al., 2017; Zheng et al., 2017). Identifying personal characteristics associated with nurse resilience could help determine which, if any, groups need more or less support and larger cross-sectional studies which include nurses from more than one speciality could assist with this. Any research which focuses only on individual factors will provide a limited understanding because resilience is influenced by external factors (Connor & Davidson, 2003).

There are contextual influences on nurse resilience, in particular conditions and barriers that threaten resilience. Nurses were acutely aware of the challenges faced and the need to actively employ strategies to maintain their resilience (Theme 2). These were not experienced in isolation and nurses described facing multiple challenges with a mixture of uncontrollable and controllable factors. Uncontrollable factors inherent in nursing such as death and dying (Ablett & Jones, 2007; Hodges et al., 2010; Zander et al., 2013) and controllable factors which related to workplace conditions such as staff shortages (Ablett & Jones, 2007; Cameron & Brownie, 2010; Foster, Cuzzillo, et al., 2018) were experienced. Participants described using varied strategies based on clinical area (Ablett & Jones, 2007; Cameron & Brownie, 2010; Dolan et al., 2012) and level of experience (Hodges et al., 2010) to manage challenges at work and maintain resilience. How nurses related to patients was an area of incongruence, demonstrating the breadth and diversity of nursing as a discipline with different clinical areas requiring nurses to use different strategies. Direct comparison of inexperienced and experienced nurses suggested inexperienced nurses had limited strategies to cope with workplace stress and maintain resilience (Hodges et al., 2010). This is an area which would benefit from further investigation.

Although research has provided a rich understanding of the adversity nurses face in their work there has been limited investigation into the influence of controllable work-related variables on nurse resilience (Theme 3). Issues with skill mix (Ablett & Jones, 2007; Zander et al., 2013), staff shortages (Ablett & Jones, 2007; Cameron & Brownie, 2010; Foster, Cuzzillo, et al., 2018), absence of peer support (Ablett & Jones, 2007; Cameron & Brownie, 2010; Hodges et al., 2010; Hsieh et al., 2016; Kornhaber & Wilson, 2011; Tubbert, 2016; Wang et al., 2018; Zander et al., 2013), lack of work-life balance (Dolan et al., 2012; Hodges et al., 2010) and poor relationships with immediate management (Hodges et al., 2010) were described as detrimental to nurse resilience. These are largely beyond the control of an individual but could be influenced at an organisational level. Some studies found significant and positive associations between resilience and peer support (Hsieh et al., 2016; Wang et al., 2018), and job satisfaction (Matos et al., 2010; Zheng et al., 2017). These findings objectively support the perception of participants in other studies (Ablett & Jones, 2007; Dolan et al., 2012) who felt peer support and job satisfaction helped bolster their resilience. Although limited, research investigating turnover intention and nurse resilience suggests possible benefits for organisations as increasing resilience may increase retention (Mills et al., 2017; Yu & Lee, 2018). There is potential to further investigate factors nurses feel affect their resilience, and explore variables beyond the control of the individual so that organisations can apply these findings to make changes to promote nurse resilience.

Evidence which has indicated resilience could be protective led to the development of interventions to boost individual nurses' ability to sustain stress and resilience. However, gaps in the understanding of nurse resilience and the factors which affect it have made developing comprehensive interventions to enhance nurse resilience difficult. Only three interventional studies met the criteria for inclusion in this review. The lone quantitative study (Babanataj et al., 2019), much like other interventional studies not included due to low methodological quality, was a brief intervention and only short-term effects were measured, therefore it is unknown if improvements in resilience and stress levels were sustained. Qualitative evaluations (Foster, Cuzzillo, et al., 2018; Slatyer, Craigie, Rees, et al., 2018) have pointed to shortcomings in current resilience interventions. In particular participants highlighted in one evaluation that the intervention did not address the causes of stress at work which can erode resilience (Foster, Cuzzillo, et al., 2018).

Given the complexity of nurse resilience revealed in the wider qualitative research it seems unlikely that interventions which predominately focus on the individual are complete or sufficient for long-term management of workplace stress. The incongruence between strategies nurses report utilising to maintain resilience in different clinical specialities (Ablett & Jones, 2007; Cameron & Brownie, 2010; Dolan et al., 2012) suggests a one-size-fits-all approach to sustaining nurse resilience could be ineffective. Research outlined in sub-theme 2a indicated many nurses had well developed personal strategies to manage workplace stress as well as variation in the strategies used in different clinical areas. Comparisons of experienced and recently qualified nurses (Hodges et al., 2010) suggest inexperienced nurses, who had fewer strategies, may benefit from resilience interventions which take into consideration the clinical context.

Limitations

The included studies were predominantly descriptive quantitative research and qualitative research graded at JBI evidence levels 3 and 4 (JBI, 2014). Only one included study met level 2 criteria. The paucity of research meeting quality appraisal criteria at JBI level 1 and 2 undermines the rigour of any assertion based around effective interventions or manipulation of context.

The majority (16/17) of included quantitative studies used descriptive cross-sectional design with resilience and other variables measured at one point in time. As resilience and other psychological outcomes are not fixed these study designs may over-simplify the relationships between these fluctuating, complex and multi-faceted constructs. All quantitative studies relied on self-report questionnaires and most studies used convenience samples with self-selected participants which may bias results. The studies measure symptoms rather than provide formal diagnosis of negative psychological outcomes such as PTSD, depression and anxiety. The presence of symptoms does not confirm that an individual has or will develop a particular condition. Nor do the studies determine if the experience of such symptoms were the result of personal characteristics, work or other external factors or a combination of all three. Studies which tested for associations between resilience and other variables tended to concentrate on one nursing speciality limiting the generalisability of results, particularly as the studies focused on high intensity specialities. Qualitative studies offered insight into the concept of resilience, providing some value for theory building and empirical testing of concepts.

CONCLUSION

This review exploring nurse resilience found studies thus far have predominately focused on the individual and have not sufficiently investigated the consequences of high and low levels of nurse resilience on patient care, organisations, and healthcare systems. Instead it is inferred or assumed that improvements to individual nurse resilience will result in improvements and/or benefits to all these areas. This scarcity of research exploring variables beyond the individual nurse gives the impression that resilience is an individual issue and this approach to nurse resilience research has been criticised (Taylor, 2019; Traynor, 2017; Virkstis et al., 2018). External factors affecting nurse resilience are under-researched. Complete and effective interventions cannot be developed with this knowledge deficit. Work environment and conditions need to be examined and where possible modified and improved to promote nurse resilience, wellbeing and retention. Only when we understand the complexity of nurse resilience and the controllable factors which affect it can complete interventions be developed.

ACKNOWLEDGEMENTS
We acknowledge Professor Desley Hegney for her critical review of the manuscript

CONFLICTS OF INTEREST
No conflict of interest has been declared by the authors.

AUTHOR CONTRIBUTIONS
Each named author has substantially contributed to the underlying research and developing or reviewing this manuscript.

References

Abdollahi, A., Abu Talib, M., Yaacob, S. N., & Ismail, Z. (2014). Hardiness as a mediator between perceived stress and happiness in nurses. *Journal of Psychiatric and Mental Health Nursing, 21*(9), 789-796. doi:10.1111/jpm.12142

Ablett, J., R., & Jones, R., S., P. (2007). Resilience and well-being in palliative care staff: A qualitative study of hospice nurses' experience of work. *Psycho-Oncology, 16*(8), 733-740. doi:10.1002/pon.1130

Aburn, G., Gott, M., & Hoare, K. (2016). What is resilience? An integrative review of the empirical literature. *Journal of Advanced Nursing, 72*(5), 980-1000. doi:10.1111/jan.12888

Babanataj, R., Mazdarani, S., Hesamzadeh, A., Gorji, M. H., & Cherati, J. Y. (2019). Resilience training: Effects on occupational stress and resilience of critical care nurses. *International Journal of Nursing Practice, 25*(1), e12697. doi:10.1111/ijn.12697

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. doi:10.1191/1478088706qp063oa

Cameron, F., & Brownie, S. (2010). Enhancing resilience in registered aged care nurses. *Australasian Journal on Ageing, 29*(2), 66-71. doi:10.1111/j.1741-6612.2009.00416.x

Cho, G. J., & Kang, J. (2017). Type D personality and post-traumatic stress disorder symptoms among intensive care unit nurses: The mediating effect of resilience. *PLoS ONE, 12*(4), e0175067. doi:10.1371/journal.pone.0175067

Chung, S. M., & Fitzsimons, V. (2013). Knowing Generation Y: A new generation of nurses in practice. *British Journal of Nursing, 22*(20), 1173-1179. doi:10.12968/bjon.2013.22.20.1173

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor- Davidson Resilience Scale (CD-RISC. *Depression and Anxiety, 18*(2), 76-82. doi:10.1002/da.10113

Craigie, M., Slatyer, S., Hegney, D., Osseiran-Moisson, R., Gentry, E., Davis, S., . . . Rees, C. (2016). A pilot evaluation of a mindful self-care and resiliency (MSCR) intervention for nurses. *Mindfulness, 7*(3), 764-774. doi:10.1007/s12671-016-0516-x

Dolan, G., Strodl, E., & Hamernik, E. (2012). Why renal nurses cope so well with their workplace stressors. *Journal of Renal Care, 38*(4), 222-232. doi:10.1111/j.1755-6686.2012.00319.x

Drennan, V. M., & Ross, F. (2019). Global nurse shortages - The facts, the impact and action for change. *British Medical Bulletin, 130*(1), 25-37. doi:10.1093/bmb/ldz014

Earvolino-Ramirez, M. (2007). Resilience: A concept analysis. *Nursing Forum, 42*(2), 73-82. doi:10.1111/j.1744-6198.2007.00070.x

Fletcher, D., & Sarkar, M. (2013). Psychological resilience: A review and critique of definitions, concepts, and theory. *European Psychologist, 18*(1), 12-23. doi:10.1027/1016-9040/a000124

Foster, K., Cuzzillo, C., & Furness, T. (2018). Strengthening mental health nurses' resilience through a workplace resilience programme: A qualitative inquiry. *Journal of Psychiatric and Mental Health Nursing, 25*(5-6), 338-348. doi:10.1111/jpm.12467

Gao, T., Ding, X., Chai, J., Zhang, Z., Zhang, H., Kong, Y., & Mei, S. (2017). The influence of resilience on mental health: The role of general well-being. *International Journal of Nursing Practice, 23*(3). doi:10.1111/ijn.12535

Gillespie, B. M., Chaboyer, W., & Wallis, M. (2009). The influence of personal characteristics on the resilience of operating room nurses: A predictor study. *International Journal of Nursing Studies, 46*(7), 968-976. doi:10.1016/j.ijnurstu.2007.08.006

Gillespie, B. M., Chaboyer, W., Wallis, M., & Grimbeek, P. (2007). Resilience in the operating room: Developing and testing of a resilience model. *Journal of Advanced Nursing, 59*(4), 427-438. doi:10.1111/j.1365-2648.2007.04340.x

Guo, Y., Cross, W., Plummer, V., Lam, L., Luo, Y., & Zhang, J. (2017). Exploring resilience in Chinese nurses: A cross-sectional study. *Journal of Nursing Management, 25*(3), 223-230. doi:10.1111/jonm.12457

Happell, B., Dwyer, T., Reid-searl, K., Burke, K. J., Caperchione, C. M., & Gaskin, C. J. (2013). Nurses and stress: Recognizing causes and seeking solutions. *Journal of Nursing Management, 21*(4), 638-647. doi:10.1111/jonm.12037

Hegney, D., Rees, C. S., Eley, R., Osseiran-Morrison, R., & Francis, K. (2015). The contribution of individual psychological resilience in determining the professional quality of life of Australian nurses. *Frontiers in Psychology, 6*, 1613. doi:10.3389/fpsyg.2015.01613

Hodges, H. F., Troyan, P. J., & Keeley, A. C. (2010). Career persistence in baccalaureate-prepared acute care nurses. *Journal of Nursing Scholarship, 42*(1), 83-91. doi:10.1111/j.1547-5069.2009.01325.x

Hsieh, H., Hung, Y., Wang, H., Ma, S., & Chang, S. (2016). Factors of resilience in emergency department nurses who have experienced workplace violence in Taiwan. *Journal of Nursing Scholarship, 48*(1), 23-30. doi:10.1111/jnu.12177

Kornhaber, R. A., & Wilson, A. (2011). Building resilience in burns nurses: A descriptive phenomenological inquiry. *Journal of Burn Care & Research, 32*(4), 481-488. doi:10.1097/BCR.0b013e3182223c89

Manzano García, G., & Ayala Calvo, J. C. (2012). Emotional exhaustion of nursing staff: Influence of emotional annoyance and resilience. *International Nursing Review, 59*(1), 101-107. doi:10.1111/j.1466-7657.2011.00927.x

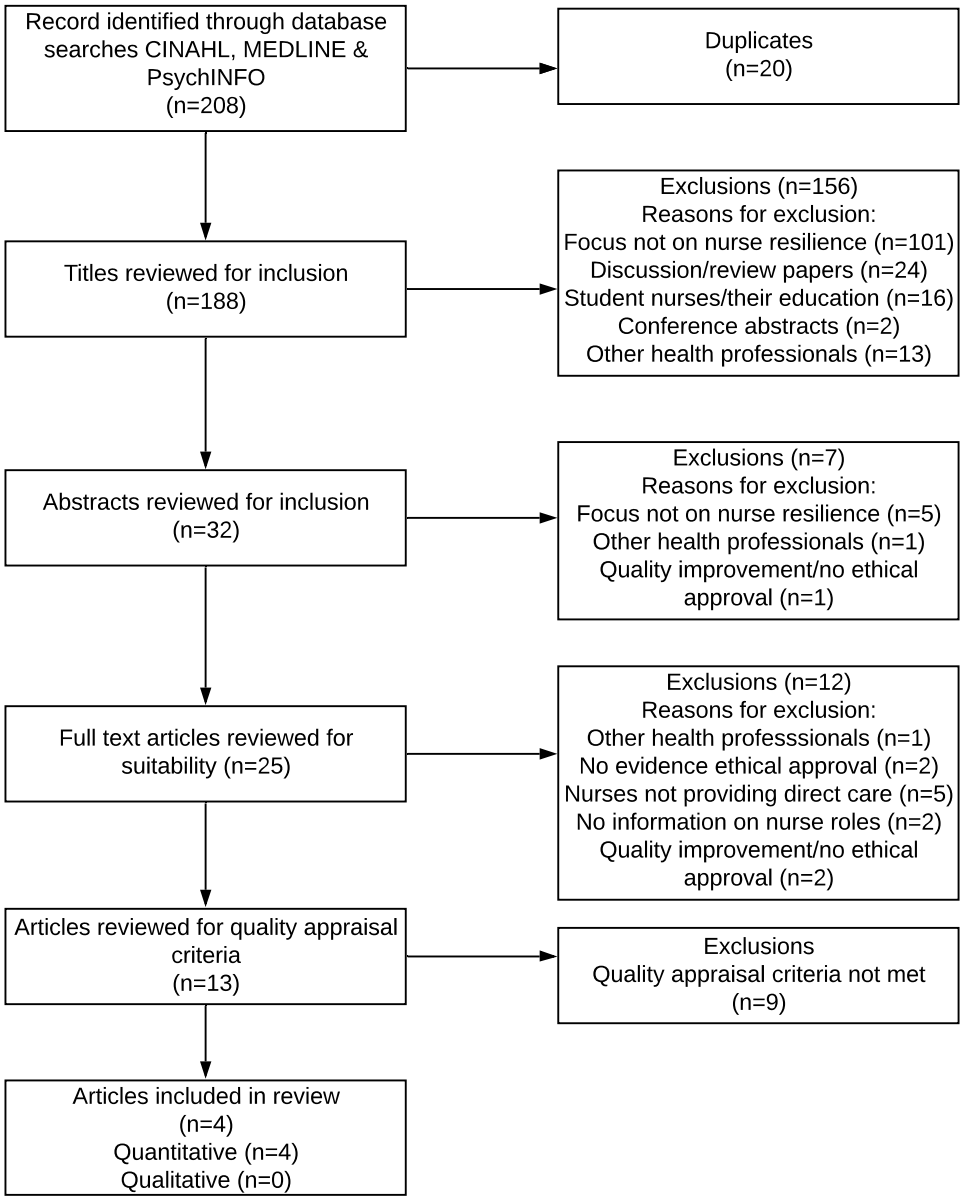
Marie, M., Hannigan, B., & Jones, A. (2017). Resilience of nurses who work in community mental health workplaces in Palestine. *International Journal of Mental Health Nursing, 26*(4), 344-354. doi:10.1111/inm.12229
Matos, P. S., Neushotz, L. A., Quinn Griffin, M. T., & Fitzpatrick, J. J. (2010). An exploratory study of resilience and job satisfaction among psychiatric nurses working in inpatient units. *International Journal of Mental Health Nursing, 19*(5), 307-312. doi:10.1111/j.1447-0349.2010.00690.x
Mealer, M., Jones, J., & Meek, P. (2017). Factors affecting resilience and development of posttraumatic stress disorder in critical care nurses. *American Journal of Critical Care, 26*(3), 184-192. doi:10.4037/ajcc2017798
Mealer, M., Jones, J., Newman, J., McFann, K. K., Rothbaum, B., & Moss, M. (2012). The presence of resilience is associated with a healthier psychological profile in intensive care unit (ICU) nurses: Results of a national survey. *International Journal of Nursing Studies, 49*, 292-299. doi:10.1016/j.ijnurstu.2011.09.015
Mills, J., Woods, C., Harrison, H., Chamberlain-Salaun, J., & Spencer, B. (2017). Retention of early career registered nurses: The influence of self-concept, practice environment and resilience in the first five years post-graduation. *Journal of Research in Nursing, 22*(5). doi:10.1177/1744987117709515
Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLOS Medicine, 6*(7), e1000097. doi:10.1371/journal.pmed.1000097
Slatyer, S., Craigie, M., Rees, C., Davis, S., Dolan, T., & Hegney, D. (2018). Nurse experience of participation in a mindfulness-based self-care and resiliency intervention. *Mindfulness*. doi:10.1007/s12671-017-0802-2
Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research, 104*, 333-339. doi:10.1016/j.jbusres.2019.07.039
Taylor, R. A. (2019). Contemporary issues: Resilience training alone is an incomplete intervention. *Nurse Education Today, 78*, 10-13. doi:10.1016/j.nedt.2019.03.014
The Joanna Briggs Institute. (2014). *JBI levels of evidence.* Retrieved from https://joannabriggs.org/jbi-approach.html#tabbed-nav=Levels-of-Evidence
The Joanna Briggs Institute. (2017). *The Joanna Briggs Institute critical appraisal tools for use in JBI systematic reviews.* Retrieved from http://joannabriggs.org/research/critical-appraisal-tools.html
Traynor, M. (2017). Resilience: Part of the problem or part of the solution? *Mental Health Nursing, 37*(6), 8-10.
Tubbert, S. J. (2016). Resiliency in emergency nurses. *Journal of Emergency Nursing, 42*(1), 47-52. doi:10.1016/j.jen.2015.05.016
Virkstis, K., Herleth, A., & Langr, M. (2018). Cracks in the foundation of the care environment undermine nurse resilience. *The Journal of Nursing Administration, 48*(12), 597-599. doi:10.1097/NNA.0000000000000687
Wang, L., Tao, H., Bowers, B. J., Brown, R., & Zhang, Y. (2018). Influence of social support and self-efficacy on resilience of early career registered nurses. *Western Journal of Nursing Research*, 193945916685712. doi:10.1177/0193945916685712
Whittemore, R., & Knafl, K. (2005). The integrative review: Updated methodology. *Journal of Advanced Nursing, 52*(5), 546-553. doi:10.1111/j.1365-2648.2005.03621.x
Williams, J., Hadjistavropoulos, T., Ghandehari, O. O., Malloy, D. C., Hunter, P. V., & Martin, R. R. (2016). Resilience and organisational empowerment among long-term care nurses: Effects on patient care and absenteeism. *Journal of Nursing Management, 24*(3), 300-308. doi:10.1111/jonm.12311
World Health Organisation. (2016). *Global strategic directions for strengthening nursing and midwifery 2016-2020.*
Yu, M., & Lee, H. (2018). Impact of resilience and job involvement on turnover intention of new graduate nurses using structural equation modeling. *Japan Journal of Nursing Science, 15*(4), 351-362. doi:10.1111/jjns.12210
Zander, M., Hutton, A., & King, L. (2013). Exploring resilience in paediatric oncology nursing staff. *Collegian, 20*, 17-25. doi:10.1016/j.colegn.2012.02.002
Zheng, Z., Gangaram, P., Xie, H., Chua, S., Ong, S. B. C., & Koh, S. E. (2017). Job satisfaction and resilience in psychiatric nurses: A study at the Institute of Mental Health, Singapore. *International Journal of Mental Health Nursing, 26*(6), 612-619. doi:10.1111/inm.12286

3.3 Updated Literature Search

The published integrative review searched databases up to July 2019. To update the review the search was repeated (Figure 1) to capture any further literature that met inclusion criteria published since the original review and the compilation of the thesis. The same key search terms, search limits, and eligibility criteria were applied to the three databases searched (CINHAL, MEDLINE, and PSCHYINFO) in the manuscript. The search was repeated to include publications up to and including January 2021 and resulted in the identification of 208 additional search results, 20 were duplicates leaving 188 for possible inclusion. Titles of the remaining publications were reviewed and 156 were excluded. This left 32 publications for abstract review, following which a further 7 were excluded leaving 25 articles for full text review (see Figure 1). A further 12 publications were excluded leaving 13 studies for quality appraisal (see Figure 1). Quality appraisal was completed using the Joanna Briggs Institute Quality Appraisal Framework (2017) to maintain consistency with quality appraisal previously conducted for the published integrative review. Four studies met the minimum quality appraisal criteria required for inclusion in the review (Supplementary Tables 8-10).

Figure 1

Updated nurse resilience literature search flow diagram



Note. Adapted from Moher at al., (2009).

3.3.1 Data Abstraction and Synthesis

Repeating the process described in the manuscript, data from each study were abstracted, coded and themes were identified (data analysis stage) according to the review aims and

key findings of each study. Fit with the themes and subthemes identified in the original integrative review were assessed as well as potential new themes or sub-themes in the new included studies. As with the earlier review, to provide rigour a structured approach to thematic analysis was undertaken using Braun & Clarke's (2006) six phases of thematic analysis.

3.3.2 Results

Included Studies

The four included studies in the update to the integrative review were published between 2019 and 2020. All four studies were quantitative and were conducted in five countries. Sample sizes ranged from 213 – 507 participants. The studies were observational utilising self-report surveys which included resilience measures (Table 7 - see supplementary material)

Themes

The key findings of the four included studies (Table 7 - see supplementary material) were compared to the themes and subthemes identified in the published review. These were discussed by all authors to establish if there was a fit with the existing themes and subthemes or if there was sufficient evidence to generate any new themes or subthemes. Agreement was reached that all four studies aligned with a previously identified theme and three studies aligned with a specific subtheme. There was not sufficient evidence in the literature to contribute to the development of any new themes or subthemes.

Theme 1: The Resilient Nurse

Two studies fit with theme one and more specifically subthemes 1a *Personal Characteristics and Nurse Resilience* (Kim et al., 2019) and subtheme 1b *Nurse Resilience as a Protective Factor* (Guo et al., 2019; Kim et al., 2019). Another study examined the relationship between resilience levels and nurse's self-rated work performance (Walpita & Arambepola, 2020) this related to the theme of *The Resilient Nurse* but did not match the subthemes previously identified within this theme. As Walpita & Arambepola's (2020) study investigated how resilience levels impacted nurse's self-rated work performance this related to the notion of *The Resilient Nurse* with the theme being characterised by studies that have tested for associations with a focus on how resilience (or a lack of) can impact an individual nurse. Whilst the study fit the theme did not easily fit one of the subthemes, because it did not assess personal characteristics (sub-theme 1a), investigate resilience as a protective factor (sub-theme 1b), or report on a resilience intervention (sub-theme 1c). Nor did the study relate to employment conditions (Theme 3) because the measure used was of nurse's self-rated work performance and no assessment of actual conditions in the workplace was included.

Subtheme 1a: Personal Characteristics and Nurse Resilience

Kim et al., (2019) found lower resilience levels were associated with being younger which was similar to the findings of two other studies that reported significant positive associations between age and resilience levels (Gillespie et al., 2009; Zheng et al., 2017). Conversely, in an earlier study Gillespie et al., (2007) found age and experience did not significantly explain resilience. Kim et al., (2019) also found low resilience scores were

associated with being unmarried, a personal characteristic that was not assessed in other studies which met inclusion criteria for the published review.

Subtheme 1b: Resilience as a Protective Factor

Two studies further contributed to evidence which suggests resilience could be a protective factor associated with reduced psychological harm (Guo et al., 2019) and/or positive outcomes in nurses (Kim et al., 2019). Similarly, to Mealer et al., (2012a) resilience had a significant negative correlation with total scores for burnout in Guo et al's (2019) study of Australian and Chinese nurses. Kim et al., (2019) found resilience had significant direct and total effects on wellbeing which was similar to the findings of Gao et al's., (2017) study where high resilience levels were predictive of general wellbeing.

Theme 3: Employment Conditions and Nurse Resilience

One study included in the update to the integrative review considered workplace conditions and nurse resilience with a focus on how this affected nurse retention (Gensimore et al., 2020). This study also fits within the previously identified subtheme 3c *Turnover Intention*.

Theme 3c: Turnover Intention

Gensimore et al's., (2020) study builds on evidence of associations found in earlier studies between resilience and turnover intention (Mills et al., 2017; Yu & Lee, 2018), by exploring the influence of nurse work characteristics on outcomes including resilience, burnout and nurse retention. The authors found resilience moderated the direct effects of nurse practice environment on retention (Gensimore et al., 2020). Holding a positive perception of their unit manager improved nurse retention for individuals with below-average resilience.

Whereas, positive perceptions of hospital management and organisational support improved nurse retention for individuals with above-average resilience.

3.3.3 Discussion

Similar to the published integrative review, the studies included in this update predominately focused on the individual with only one study investigating the influence of work conditions on nurse resilience (Gensimore et al., 2020). Further evidence that resilience is an important protective factor for nurses was identified in the update (Guo et al., 2019; Kim et al., 2019). Findings around the associations of resilience and age were similar to the majority of studies in the published review (Gillespie et al., 2009; Kim et al., 2019; Zheng et al., 2017). The four new studies included samples that were not speciality specific which differed from the majority of studies in the original review. This may increase the generalisability of the results from these more recent publications. It is important to note that no studies which investigated nurse resilience in the context of COVID-19 met the inclusion and/or quality appraisal criteria for the update to the review. As more literature is published during and in the aftermath of the pandemic, papers of sufficient methodological quality are likely to emerge regarding nurse resilience in this context.

Little has changed in the time since the original literature search for the published manuscript was undertaken and the updated search was completed. External factors affecting nurse resilience remain under-researched. The gaps identified in the published integrative review remain and work environment and conditions still need to be investigated to determine their impact on nurse resilience. This knowledge is required to

gain an understanding of the complexity of resilience and the controllable factors which affect it so that complete interventions can be developed.

Limitations

All four included studies were descriptive quantitative research graded at JBI evidence level 4 (JBI, 2014). The studies used a descriptive cross-sectional design with resilience and other variables measured at one point in time. As resilience and other psychological outcomes are not fixed these study designs may over-simplify the relationships between these fluctuating, complex and multi-faceted constructs. The nature of this research lends itself to the use of self-report questionnaires and convenience samples with self-selected participants featured in all four studies which may bias results.

3.4 Justification for Current Research

The investigation of nurse resilience has become a focus in research and practice in an attempt to address and prevent negative outcomes nurses are at risk of as a result of their work, including burnout and other stress-related conditions (Craigie et al., 2015; Hegney et al., 2014; Khamisa et al., 2013; Ray et al., 2013). To date research exploring resilience in nurses has largely focused on the individual (Babanataj et al., 2019; Cho & Kang, 2017; Foster, Cuzzillo, et al., 2018; Mealer et al., 2017). This is in part due to the influence of definitions of resilience from the discipline of psychology driving a view of individual capability. Whilst acknowledged as contributing to individual resilience, there has been little consideration and exploration of the context in which nurses work and factors beyond the individual which relate to resilience. The methodological quality and reporting of research

investigating nurse resilience has been poor with a large number of studies not meeting quality appraisal criteria for inclusion in the integrative review.

Conducting the concept analysis and integrative review has highlighted gaps in the literature and the need to consider factors beyond the individual that include workplace conditions such as peer support, job satisfaction, staff shortages, skill mix, work-life balance, and the role of organisations in sustaining and maintaining the resilience of the nurses they employ. As outlined in the introductory chapter, there is evidence that organisations can affect employee well-being and in particular, research that demonstrates organisational values can affect job satisfaction, employee engagement, and stress levels. Exploring the impact of organisational values on resilience adds a further dimension to the factors which affect nurses' resilience which may enable more comprehensive interventions to be developed in future research and guide approaches to enhance nurse resilience.

3.5 Supplementary Material to the Publication

Supplementary Table 1. Summary of included studies for manuscript

Author, Year and Country	JBI Level of Evidence	Aim	Design	Sample Size	Synopsis of Key Findings Relating to Resilience	Themes
Abdollahi, Talib, Yaacob and Ismail (2014) Iran	4	To examine the relationship between hardiness, perceived stress and happiness.	Quantitative observational study, cross-sectional survey Instrument: Personal Views Survey, third edition revised 18 items that measure hardiness	252 nurses in six private hospitals	-Hardiness partially mediated between perceived stress and happiness -Perceived stress and hardiness are predictors of happiness in nurses explaining 46% of the variance in happiness -Higher levels of hardiness and lower levels of perceived stress significantly predicted happiness	1
Ablett and Jones (2007) England	3	To describe hospice nurses' experiences of their work to gain an understanding of factors which promote resilience and mitigate workplace stress	Qualitative grounded theory methodology and interpretative phenomenological analysis Semi-structured interviews	10 palliative care nurses	-Challenges of working in palliative care exposure to death and dying -Issues with work conditions e.g. staff shortages and shift work contribute to workplace stress -Participants expressed a high degree of commitment to work -Perception of a high degree of control and autonomy over workload needed -Influence of past experiences on resilience -Awareness of own spirituality -Maintaining professional boundaries as a protective strategy -Resilience fostered by the degree of satisfaction in being able to provide skilled holistic care	2, 3

					- Offloading to colleagues, humour, maintaining work-life balance and good social networks were strategies participants used to cope	
Babanataj, Mazdarani, Hesamzadeh, Gorji and Cherati (2019) Iran	2	To determine the effect of a resilience training intervention on occupational stress and resilience levels	Quantitative quasi-experimental intervention pre-test and post-test Instrument: Connor-Davidson Resilience Scale 25 item scale	30 critical care nurses	-Intervention consisted of a resilience training program delivered over five sessions -Significant increase in resilience scores 2 weeks post intervention -Significant decrease in occupational stress scores 2 weeks post intervention	1
Cameron and Brownie (2010) Australia	3	To identify attributes that contribute to resilience and personal strategies used to manage workplace stressors	Qualitative phenomenology Semi-structured interviews	9 Aged care nurses	Analysis identified eight thematic clusters of resilience: -result of experience -fostered by the degree of satisfaction achieved in being able to provide holistic skilful care -enhanced by having a positive attitude, making a difference or sense of faith -reinforced by notion of making a difference, close relationships and sharing of experiences with residents -promoted by strategies such as debriefing, validating and self-reflection -promoted by support from colleagues, mentors and team camaraderie	2, 3

					-insight into ability to recognise stressors and put in strategies such as humour to minimise the effects -enhanced by ensuring exercise, rest, social support and interests are maintained to maximise work-life balance	
Cho and Kang (2017) Korea	4	To investigate the relationship between Type D personality and PTSD symptoms and determine the mediating effect of resilience on this relationship	Quantitative observational study, cross-sectional survey Instrument: Korean version of the Connor-Davidson Resilience Scale 25 item scale	179 ICU nurses from 7 hospitals	-38.6% of participants had Type D personality - Type D personality was associated with PTSD symptoms -Resilience in ICU nurses partially mediated the relationship between Type D personality and PTSD -Higher levels of resilience improved PTSD symptoms -Supports evidence resilience could be a protective factor	1
Dolan, Strodl and Hamernik (2012) Australia	4	To gain an understanding of the stressors and coping strategies used which may lead to resilience	Qualitative grounded theory approach interviews and quantitative measures of burnout and resilience Instrument: The Resilience Scale 25 item scale	16 haemodialysis nurses	-Quantitative descriptive statistics -Qualitative data explored stressors and experiences of burnout and resilience -Stressors - extended contact with patients, blurring of boundaries nurses became part of patient's families, discrimination between nurses old vs new, workplace violence -Male nurses more likely to experience burnout in terms of depersonalisation -Resilience bolstered by making a difference to patients, personal achievement, self-reliance, enjoyment of work, more sociable work hours = better work life balance, predictability of role, less physically demanding than ward work, autonomy -Strategies to prevent burnout namely emotional distancing described as not getting emotionally involved, not looking at rosters ahead of time to avoid anxiety prior	2, 3

					to shift i.e. who would nurses would be working with and the skill mix	
Foster, Cuzzillo and Furness (2018) Australia	3	To explore the perspectives of participants who took part in a mental health service-initiated resilience programme	Qualitative exploratory inquiry as part of a mixed methods study Semi-structured interviews and focus groups	29 mental health nurses two groups participants and facilitators of resilience intervention	-Evaluation of PAR programme -Participants frequently faced adversity including workplace violence, staff conflict and aggression -The PAR programme reinforced participants' understanding of resilience and further developed during the programme - Participants felt the programme strengthened their resilience -Participants described a new awareness of their strengths, ability to handle stress, improvement in peer support, benefits in personal and professional life, better understanding of others stress as well as own -However structural and organisational stressors e.g. high acuity, insufficient staffing, not enough beds, workload persisted and the programme could not address these factors	1, 2, 3
Gao, Ding, Chai, Zhang, Zhang, Kong and Mei (2017) China	4	To explore the relationship between resilience, mental health and general wellbeing	Quantitative cross-sectional survey Instrument: Chinese version of the Connor-Davidson Resilience Scale 25 item scale	Random cluster sampling 1 hospital 365 mental health nurses	-Resilience was a significant predictor of general well-being and mental health -Higher resilience levels were associated with higher level of general well-being and fewer mental health problems -Supports evidence that resilience could be a protective factor	1

Gillespie, Chaboyer, Wallis and Grimbeek (2007) Australia	4	To examine the relationship between perceived competence, collaboration, self-efficacy, hope, age, experience, education, years of employment and resilience	Quantitative cross-sectional survey Instrument: Connor-Davidson Resilience Scale 25 item scale	772 operating room nurses who were members of the Australian College of Perioperative Nurses	-Collaboration, age, education, experience and years of employment were not significant in the explanation of resilience -Resilience was best explained by hope, self-efficacy, coping, control and competence (significant associations) -Gillespie's model explained 60% of the variation in resilience	1
Gillespie, Chaboyer and Wallis (2009) Australia	4	To quantify resilience and investigate the contribution of the variables age, years of experience and education to resilience levels	Quantitative cross-sectional survey Instrument: Connor-Davidson Resilience Scale 25 item scale	735 operating room nurses who were members of the Australian College of Perioperative Nurses	-Statistically significant associations between resilience and age -Statistically significant associations between resilience and experience -No association between resilience and education level	1
Guo, Cross, Plummer, Lam, Luo and Zhang (2017) China	4	To explore the state of resilience and its predictors	Quantitative cross-sectional survey Instrument: Connor-Davidson Resilience Scale 25 item scale	1061 nurse from six hospitals	-Higher level of education significantly associated with higher resilience -Higher income, non-smoking and exercise positively and significantly associated with resilience -Positive association between resilience and self-efficacy -Positive association between positive coping style and resilience -Negative coping style was negatively associated with resilience	1

Hodges, Troyan and Keeley (2010) USA	3	To explain adaptation to and negotiation of challenges in an acute care setting in the context of social and structural features and the development of career persistence	Qualitative grounded theory Semi-structured interviews	BSN nurses in their first 11-18 months of practice and experienced BSN nurses with ≥5 years experience total sample 19 nurses	-Participants drew on internal and external resources developing self-efficacy and negotiating the challenges of acute care settings e.g. exposure to death and dying -Three key processes identified as being essential to building resilience, verifying fit, stage setting and optimising the environment -Verifying fit – newly qualified nurses tried to find their fit in nursing generally. Experienced nurses focus more on finding a workplace that fit with their philosophy of patient care and personal values Stage setting – positive relationships in the workplace, fostering teamwork, giving and seeking help, knowing and drawing on the strengths of team members, being assertive to lobby for staff and resources Optimising the environment – a proactive process in which participants enhanced satisfaction with work environments, being in a work setting congruent with personal values, working conditions, proximity to home, ability to balance between personal and professional demands, working in a hospital where staff felt cared for and having managers that recognise and act when a nurse has had a difficult assignment, strategies to avoid burnout like going to work in other clinical areas for a change or taking leave	2, 3
Hsieh, Hung, Wang, Ma and Chang (2016) Taiwan	4	To investigate the relationship between personality traits, social network integration and resilience in participants	Quantitative cross-sectional survey Instrument: Chinese version of The Resilience Scale 29 item scale	187 ED nurses	-No significant difference in resilience levels based on religious beliefs and family support scores -46.3% of the variance in resilience could be explained by extraversion, neuroticism and peer support -Abused nurses with higher levels of extraversion and lower levels of neuroticism had significantly higher resilience scores -Peer support enhanced resilience	1, 3

		who had suffered workplace violence				
Kornhaber and Wilson (2011) Australia	3	To explore the concept of building resilience as a strategy to responding to adversity	Qualitative phenomenological inquiry Semi-structured interviews	7 burns unit nurses ≥3 years experience working in burns	-Participant exposed to the trauma of caring for extremely unwell and deteriorating patients -Repeated exposure emotionally toughened up participants -Described the need for compassion and emotional detachment -Coping skills developed over time -Finding the positive, pragmatism -Taking time to regroup in work -Exercise and recreational activities outside of work to destress -Having enough time of between shifts important to allow time to recharge -Multidisciplinary team an important source of support -The longer nurses worked in burns the more coping skills they developed	2, 3
Manzano Garcia and Ayala Calvo (2012) Spain	4	To study the influence of emotional annoyance and resilience on emotional exhaustion levels	Quantitative cross-sectional survey Instrument: Connor-Davidson Resilience Scale 25 item scale	200 nurses from five hospitals private and public	-Modelling showed emotional annoyance may contribute the development of emotional exhaustion (a feature of burnout) but resilience may act as a protective factor against emotional exhaustion -resilience and professional efficacy (component of the Maslach Burnout Inventory) had a significant negative correlation with emotional exhaustion -Supports evidence that resilience could be a protective factor	1

Marie, Hannigan and Jones (2017) Palestine	3	To observe and describe the workplace environment, describe the challenges participants faced and to examine sources of resilience	Qualitative interpretive design Observation and semi-structured interviews	15 community mental health nurses	-Both Sumud culture and religion (Islamic faith) contributed to resilience -Sumud culture including being steadfast in the face of challenges, patriotism, wanting to prove yourself -Shared experiences of Palestinian people created sense of cohesiveness and unity -Belief religion – would be rewarded for good work, facing challenges -Philosophy of nursing care a source of resilience -Supports – community, family, colleagues, managers -Belief that education contributed to resilience -Personal capacity for resilience – individual characteristics, learned through life and experience, coping skills as a source of resilience	2
Matos (2010) USA	4	To examine the relationship between resilience and job satisfaction	Quantitative cross-sectional survey Instrument: The Resilience Scale 25 item scale	32 psychiatric nurses	-Measures The Resilience Scale (Wagnild & Young) and The Index of Work Satisfaction Part B -Correlation coefficient between resilience and job satisfaction <0.06 -10% of nurses' job satisfaction scores explained by nurse' resilience scores -Professional status (a subscale in The Index of Work Satisfaction Scale) showed a significant positive correlation with resilience	3
Mealer, Jones, Newman, McFann, Rothbaum and Moss (2012) USA	4	To determine if resilience was associated with healthier psychological profiles in participants	Quantitative cross-sectional survey Instrument: Connor-Davidson Resilience Scale 25 item scale	744 ICU nurses who were members of the American Association of Critical care nurses	-High levels of burnout syndrome in the sample with 80% of participants having positive symptoms -Presence of resilience was significantly associated with a lower prevalence of PTSD, burnout syndrome, and symptoms of anxiety and depression -Supports evidence that resilience could be a protective factor	1

Mealer, Jones and Meek (2017) USA	4	To identify factors which affect resilience and to determine if factors have a direct or indirect effect on resilience and development of PTSD	Quantitative cross-sectional survey Instrument: An abbreviated version of the Connor-Davidson Resilience Scale created by the authors	744 ICU nurses who were members of the American Association of Critical care nurses	-Medical ICU nurses had the highest rates of PTSD -Nurses with a graduate degree were 18% more likely to experience PTSD than bachelor degree nurses -Resilience correlated with individual characteristics including having children, number of years' experience in ICU, type of degree	1
Mills (2017) Australia	4	To investigate nurse self-concept, practice environment and resilience, and how these factors influence retention	Quantitative cross-sectional survey Instrument: Connor-Davidson Resilience Scale 10 item scale	161 Early career registered nurses	-Resilience scores were highest in nurses at one-year post graduation, were lower in nurses at two years and then stable across nurses with 3-5 years' experience -Resilience and intention to stay moderately correlated	3
Slatyer, Craigie, Rees, Davis, Dolan and Hegney (2018) Australia	3	To explore participants' responses to a mindfulness-based self-care and resiliency program including the feasibility, acceptability	Qualitative descriptive design thematic analysis Unstructured interviews	16 nurses from one hospital	-Interviews conducted to obtain feedback about a mindfulness-based self-care and resiliency intervention: -Participants reported intervention helped them to recognise the impact of stress and provided them with coping skills -Some reported feeling calmer -Participants reported investing more time in self-care -Program acceptable to participants -Difficulty attending workshops -Mix of participant groups with junior and senior staff could impede open discussion	1

		and applicability of the program			-Participants expressed a need for long term support and engagement to sustain benefits	
Tubbert (2016) Resiliency in emergency nurses USA	3	To explore resiliency characteristics	Qualitative directed content analysis Semi-structured interviews	16 ED nurses	-A complex an unpredictable work environment required flexible and creative thinking -Nurses made decisions based on past experiences -Trust in colleagues needed to work effectively -Strategies to manage stress included self-talk, teamwork, engaging with a mentor, exercise, relaxation techniques, eating well, remaining positive, the need to reset and balance between work and home and life	2, 3
Wang, Tao, Bowers, Brown and Zhang (2018) China	4	To examine relationships between social support, self-efficacy and resilience	Quantitative cross-sectional survey Instrument: Nurse Resilience Scale 25 item scale	747 nurses from 6 hospitals working full-time with <3 years experience	-Family support had no significant effect on self-efficacy and resilience levels -General self-efficacy had a significant positive effect on resilience levels -Higher levels of self-efficacy associated with higher resilience levels -Co-worker support did not directly influence resilience instead co-worker support improved general self-efficacy which had an impact on resilience -Results suggest resilience could be improved through co-worker support and self-efficacy	3
Williams, Hadjistavropoulos, Ghandehari, Malloy, Hunter and Martin (2016) USA & Canada	4	To study resilience and its relationship to organisational empowerment, self-reported quality of care, perceptions of resident	Quantitative cross-sectional survey Instrument: Resilience Scale for Adults 33 item scale	130 long term care nurses	-Resilience was a significant predictor of self-perceived quality of care and attitudes and beliefs towards residents with dementia -Resilient nurses were more likely to report increased respect for patients with dementia -Resilience was not predictive of absenteeism -Organisational empowerment did not add to the predictive power of resilience	3

		personhood and absenteeism.				
Yu and Lee (2018) Korea	4	To examine the relationship between work environment satisfaction, emotional labour, burnout, resilience and job involvement and their affect on turnover intention	Quantitative cross-sectional survey Instrument: Abbreviated Connor-Davidson Resilience Scale 10 item scale	371 newly qualified nurses with ≤18 months experience working in high-grade general hospitals, general hospitals and clinics	-Turnover intention was negatively correlated with resilience -Resilience was affected by Work Environment Satisfaction and stress factors which explained 33% of the -Job involvement was affected by stress factors and resilience which explained 34% of the variance -Resilience and job involvement were important mediators in the relationships among factors which affected newly qualified nurses' turnover intention	3
Zander, Hutton and King (2013) Australia	3	To explore and understand the concept of resilience as experienced by paediatric oncology nurses and the development of resilience in this population	Qualitative case study Semi-structured interviews	Five paediatric oncology nurses	-Nurses interviewed considered resilience as a personal multifaceted concept – effected by experiences, could be learned, effected by personality, included personal and professional growth -Perceived that resilience could only be developed in the face of challenges and adversity -identified specific stressors at work that required resilience e.g. caring for dying children, witnessing patient deterioration, shift work, staffing skill mix, politics within the workplace -Nurses described actions and strategies they used e.g. self-care, personal rituals, talking, problem solving recognition that needed to find strategies that worked for the individual -Need for support in and outside work to foster resilience	2, 3

Zheng, Gangaram, Xie, Chua, Ong and Koh (2017) Singapore	4	To explore the relationship between job satisfaction and resilience	Quantitative cross-sectional survey Instrument: The Resilience Scale 25 item scale	748 psychiatric nurses	-Statistically significant difference based on years of experience and age (>experience />age = >resilience) -No statistically significant difference in resilience scores between departments -No statistically significant difference in resilience scores based on employment status -No statistically significant difference in resilience scores based on gender -Positive and significant association between job satisfaction and resilience	1, 3

Supplementary Table 2. Cross-sectional/descriptive study appraisals

Study	Q1 Were the criteria for inclusion in the sample clearly defined? Desirable but not essential	Q2 Were the study subjects and setting described in detail? Essential	Q3 Was the exposure measured in a valid and reliable way? Desirable but not essential. It was agreed that exposure would be considered to be any measure of stress, PTSD, anxiety, depression or burnout	Q4 Were objective, standard criteria used for measurement of the condition? Essential	Q5 Were confounding variables identified? Desirable but not essential it was agreed that identification could include discussion of factors only as well as clear identification	Q6 Were strategies to deal with confounding variables stated? Desirable but not essential for studies ascribing causality	Q7 Were the outcomes measured in a valid and reliable way? Essential it was agreed that use of a validated resilience scale would be considered as appropriate outcome measure	Q8 Was appropriate statistical analysis used? Essential	Peer review journal? Essential	Score
(Abdollahi et al, 2014)	×	✓	✓	✓	✓	✓	✓	✓	✓	8/9
(Ang et al, 2018)	×	✓	N/A	✓	✓	✓	✓	×	✓	6/8
(Brown et al, 2018)	✓	✓	✓	✓	✓	✓	✓	×	✓	8/9
(Cho et al, 2017)	✓	✓	✓	✓	✓	✓	✓	✓	✓	9/9
(Gao et al, 2017)	✓	✓	✓	✓	✓	✓	✓	✓	✓	9/9
(Garcia-Izquierdo et al, 2018)	×	✓	✓	✓	✓	✓	✓	×	✓	7/9

Study	Q1 Were the criteria for inclusion in the sample clearly defined? Desirable but not essential	Q2 Were the study subjects and setting described in detail? Essential	Q3 Was the exposure measured in a valid and reliable way? Desirable but not essential. It was agreed that exposure would be considered to be any measure of stress, PTSD, anxiety, depression or burnout	Q4 Were objective, standard criteria used for measurement of the condition? Essential	Q5 Were confounding variables identified? Desirable but not essential it was agreed that identification could include discussion of factors only as well as clear identification	Q6 Were strategies to deal with confounding variables stated? Desirable but not essential for studies ascribing causality	Q7 Were the outcomes measured in a valid and reliable way? Essential it was agreed that use of a validated resilience scale would be considered as appropriate outcome measure	Q8 Was appropriate statistical analysis used? Essential	Peer review journal? Essential	Score
(Gillespie et al, 2007)	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	7/7
(Gillespie et al, 2009)	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	7/7
(Guo et al, 2017)	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	7/7
(Hsieh et al 2016)	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	7/7
(Itzhaki et al, 2015)	×	✓	✓	✓	✓	✓	✓	×	✓	7/9
(Kutluturkan et al, 2016)	✓	✓	✓	✓	✓	✓	✓	×	✓	8/9

Study	Q1 Were the criteria for inclusion in the sample clearly defined? Desirable but not essential	Q2 Were the study subjects and setting described in detail? Essential	Q3 Was the exposure measured in a valid and reliable way? Desirable but not essential. It was agreed that exposure would be considered to be any measure of stress, PTSD, anxiety, depression or burnout	Q4 Were objective, standard criteria used for measurement of the condition? Essential	Q5 Were confounding variables identified? Desirable but not essential it was agreed that identification could include discussion of factors only as well as clear identification	Q6 Were strategies to deal with confounding variables stated? Desirable but not essential for studies ascribing causality	Q7 Were the outcomes measured in a valid and reliable way? Essential it was agreed that use of a validated resilience scale would be considered as appropriate outcome measure	Q8 Was appropriate statistical analysis used? Essential	Peer review journal? Essential	Score
(Lanz et al 2017)	×	✓	✓	✓	×	×	✓	×	✓	5/9
(Manzano-Garicia et al 2012)	✓	✓	✓	✓	✓	✓	✓	✓	✓	9/9
(Matos et al, 2010)	✓	✓	N/A	N/A	N/A	N/A	✓	✓	✓	5/5
(Mealer et al, 2012a)	✓	✓	✓	✓	✓	✓	✓	✓	✓	9/9
(Mealer et al, 2017)	✓	✓	✓	✓	✓	✓	✓	✓	✓	9/9
(Mills et al, 2017)	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	7/7

Study	Q1 Were the criteria for inclusion in the sample clearly defined? Desirable but not essential	Q2 Were the study subjects and setting described in detail? Essential	Q3 Was the exposure measured in a valid and reliable way? Desirable but not essential. It was agreed that exposure would be considered to be any measure of stress, PTSD, anxiety, depression or burnout	Q4 Were objective, standard criteria used for measurement of the condition? Essential	Q5 Were confounding variables identified? Desirable but not essential it was agreed that identification could include discussion of factors only as well as clear identification	Q6 Were strategies to deal with confounding variables stated? Desirable but not essential for studies ascribing causality	Q7 Were the outcomes measured in a valid and reliable way? Essential it was agreed that use of a validated resilience scale would be considered as appropriate outcome measure	Q8 Was appropriate statistical analysis used? Essential	Peer review journal? Essential	Score
(Rushton et al, 2015)	×	×	✓	✓	✓	✓	✓	×	✓	6/9
(Russo et al, 2018)	×	✓	N/A	N/A	×	×	✓	×	✓	3/7
(Sauer et al, 2017)	✓	✓	✓	✓	✓	✓	✓	×	✓	8/9
(Sellers et al, 2019)	✓	✓	N/A	N/A	✓	✓	✓	×	✓	6/7
(Wang et al, 2018)	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	7/7
(Wei et al, 2014)	×	×	N/A	N/A	✓	✓	✓	×	✓	4/7

Study	Q1 Were the criteria for inclusion in the sample clearly defined? Desirable but not essential	Q2 Were the study subjects and setting described in detail? Essential	Q3 Was the exposure measured in a valid and reliable way? Desirable but not essential. It was agreed exposure would be considered to be any measure of stress, PTSD, anxiety, depression or burnout	Q4 Were objective, standard criteria used for measurement of the condition? Essential	Q5 Were confounding variables identified? Desirable but not essential it was agreed that identification could include discussion of factors only as well as clear identification	Q6 Were strategies to deal with confounding variables stated? Desirable but not essential for studies ascribing causality	Q7 Were the outcomes measured in a valid and reliable way? Essential it was agreed that use of a validated resilience scale would be considered as appropriate outcome measure	Q8 Was appropriate statistical analysis used? Essential	Peer review journal? Essential	Score
(Williams et al, 2016)	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	7/7
(Yu et al, 2018)	✓	✓	✓	✓	✓	✓	✓	✓	✓	9/9
(Zheng et al, 2017)	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	7/7
(Zou et al, 2016)	✓	✓	✓	✓	✓	✓	✓	×	✓	8/9

Supplementary Table 3. Qualitative study appraisals

Study	Q1 Is there congruity between the stated philosophical perspective and the research? Essential – it was agreed that a demonstrated sound qualitative approach rather than a stated philosophical perspective would be satisfactory	Q2 Is there congruity between the research methodology and the research questions or objectives? Essential	Q3 Is there congruity between the research methodology and the methods used to collect the data? Essential	Q4 Is there congruity between the research methodology and the representation and analysis of the data? Essential	Q5 Is there congruity between the research methodology and the interpretation of the results? Essential	Q6 Is there a statement locating the researcher culturally or theoretically? Desirable but not essential	Q7 Is the influence of the researcher on the research, and vice-versa addressed? (Includes evidence of measure to check trustworthiness) Essential	Q8 Are participants and their voices adequately represented? Essential	Q9 Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body? Essential	Q10 Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data? Essential	Peer review journal? Essential	Score
(Ablett et al, 2007)	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	10/11
(Cameron et al, 2010)	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	10/11
(Delaney et al, 2018)	✓	✓	✓	×	×	×	×	×	✓	✓	✓	6/11
(Dolan et al, 2012)	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	10/11

Study	Q1 Is there congruity between the stated philosophical perspective and the research? Essential – it was agreed that a demonstrated sound qualitative approach rather than a stated philosophical perspective would be satisfactory	Q2 Is there congruity between the research methodology and the research questions or objectives? Essential	Q3 Is there congruity between the research methodology and the methods used to collect the data? Essential	Q4 Is there congruity between the research methodology and the representation and analysis of the data? Essential	Q5 Is there congruity between the research methodology and the interpretation of the results? Essential	Q6 Is there a statement locating the researcher culturally or theoretically? Desirable but not essential	Q7 Is the influence of the researcher on the research, and vice-versa addressed? Essential	Q8 Are participants and their voices adequately represented? Essential	Q9 Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body? Essential	Q10 Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data? Essential	Peer review journal? Essential	Score
(Foster et al, 2018)	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	10/11
(Hodges et al, 2010)	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	10/11
(Hurst et al, 2005)	✓	×	✓	✓	×	×	×	×	✓	✓	✓	6/11
(Kornhaber et al, 2011)	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	10/11

Study	Q1 Is there congruity between the stated philosophical perspective and the research? Essential – it was agreed that a demonstrated sound qualitative approach rather than a stated philosophical perspective would be satisfactory	Q2 Is there congruity between the research methodology and the research questions or objectives? Essential	Q3 Is there congruity between the research methodology and the methods used to collect the data? Essential	Q4 Is there congruity between the research methodology and the representation and analysis of the data? Essential	Q5 Is there congruity between the research methodology and the interpretation of the results? Essential	Q6 Is there a statement locating the researcher culturally or theoretically? Desirable but not essential	Q7 Is the influence of the researcher on the research, and vice-versa addressed? Essential	Q8 Are participants and their voices adequately represented? Essential	Q9 Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body? Essential	Q10 Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data? Essential	Peer review journal? Essential	Score
(Marie et al, 2017)	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	10/11
(Mealer et al, 2012b)	×	✓	✓	✓	✓	×	×	✓	✓	✓	✓	8/11
(Slatyer et al, 2018)	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	10/11
(Tubbert et al, 2016)	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	10/11

Study	Q1 Is there congruity between the stated philosophical perspective and the research? Essential – it was agreed that a demonstrated sound qualitative approach rather than a stated philosophical perspective would be satisfactory	Q2 Is there congruity between the research methodology and the research questions or objectives? Essential	Q3 Is there congruity between the research methodology and the methods used to collect the data? Essential	Q4 Is there congruity between the research methodology and the representation and analysis of the data? Essential	Q5 Is there congruity between the research methodology and the interpretation of the results? Essential	Q6 Is there a statement locating the researcher culturally or theoretically? Desirable but not essential	Q7 Is the influence of the researcher on the research, and vice-versa addressed? Essential	Q8 Are participants and their voices adequately represented? Essential	Q9 Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body? Essential	Q10 Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data? Essential	Peer review journal? Essential	Score
(Zander et al, 2013)	✓	✓	✓	✓	✓	✖	✓	✓	✓	✓	✓	10/11

Supplementary Table 4. Quasi-experimental study appraisals

Study	Q1 Is it clear in the study what is the 'cause' and what is the 'effect' (i.e. there is no confusion about which variable comes first) Essential	Q2 Were the participants included in any comparisons similar? Desirable but not essential	Q3 Were the participants included in any comparisons receiving similar treatment/care, other than the exposure or intervention of interest? Desirable but not essential	Q4 Was there a control group? Desirable but not essential	Q5 Were there multiple measurements of outcomes both pre and post the intervention/ exposure? Essential	Q6 Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analysed? Desirable but not essential	Q7 Were the outcomes of participants included in any comparisons measured in the same way? Essential	Q8 Were outcomes measures in a reliable way? Essential	Q9 Was appropriate statistical analysis used? Essential It was agreed that studies may be underpowered or have a significant attrition rate will be excluded	Peer review journal? Essential	Score
(Babanataj et al, 2019)	✓	N/A	N/A	×	✓	N/A	N/A	✓	✓	✓	5/6
(Bonamer et al, 2019)	✓	N/A	N/A	×	✓	N/A	N/A	✓	×	✓	4/6
(Craigie et al, 2016)	✓	N/A	N/A	×	✓	N/A	N/A	✓	×	✓	4/6
(Delaney et al, 2018)	✓	N/A	N/A	×	✓	N/A	N/A	✓	×	✓	4/6
(Foster al, 2018)	✓	N/A	N/A	×	✓	N/A	N/A	✓	×	✓	4/6

Study	Q1 Is it clear in the study what is the 'cause' and what is the 'effect' (i.e. there is no confusion about which variable comes first) Essential	Q2 Were the participants included in any comparisons similar? Desirable but not essential	Q3 Were the participants included in any comparisons receiving similar treatment/care, other than the exposure or intervention of interest? Desirable but not essential	Q4 Was there a control group? Desirable but not essential	Q5 Were there multiple measurements of outcomes both pre and post the intervention/ exposure? Essential	Q6 Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analysed? Desirable but not essential	Q7 Were the outcomes of participants included in any comparisons measured in the same way? Essential	Q8 Were outcomes measures in a reliable way? Essential	Q9 Was appropriate statistical analysis used? Essential It was agreed that studies may be underpowered or have a significant attrition rate will be excluded	Peer review journal? Essential	Score
(Slatyer et al, 2018)	✓	✓	✓	✓	✓	×	✓	✓	×	✓	8/10
(Traylor 2018)	✓	N/A	N/A	×	✓	×	N/A	✓	×	×	3/7
(Walker et al, 2006)	✓	×	✓	✓	✓	✓	✓	✓	×	✓	8/10

Supplementary Table 5. Randomised control trial study appraisals

Study	Q1 Was true randomisation used for assignment to treatment groups? Essential	Q2 Was allocation to treatment concealed? Essential	Q3 Were treatment groups similar at baseline? Essential	Q4 Were participants blind to treatment assignment Desirable but not essential based on whether blinding was possible	Q5 Were those delivering treatment blind to treatment assignment? Desirable but not essential based on whether blinding was possible	Q6 Were outcome assessors blind to treatment assignment? Desirable but not essential	Q7 Were treatment groups treated identically other than the intervention of interest? Essential?	Q8 Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analysed? Essential	Q9 Were participants analysed in the groups to which they were randomised? Essential	Q10 Were outcomes measured in the same way for treatment groups? Essential	Q11 Were outcomes measured in a reliable way? Essential	Q12 Was appropriate statistical analysis used? Essential	Q13 Was the trial design appropriate, and any deviations from the standard RCT design (individual randomisation, parallel groups) accounted for in the conduct and analysis of the trial? Essential	Peer review journal Essential	Score
(Chesak et al, 2015)	✓	✓	✓	×	×	×	✓	×	✓	✓	✓	✓	×	✓	9/14
(Lin et al, 2019)	✓	✓	✓	×	×	×	✓	✓	×	✓	✓	✓	✓	✓	10/14
(Mealer et al, 2014)	×	×	×	×	×	×	✓	✓	✓	✓	✓	×	×	✓	6/14

Supplementary Table 2-5 References

Abdollahi, A., Abu Talib, M., Yaacob, S. N., & Ismail, Z. (2014). Hardiness as a mediator between perceived stress and happiness in nurses. *Journal of Psychiatric and Mental Health Nursing, 21*(9), 789-796. doi:10.1111/jpm.12142

Ablett, J., R., & Jones, R., S., P. (2007). Resilience and well-being in palliative care staff: A qualitative study of hospice nurses' experience of work. *Psycho-Oncology, 16*(8), 733-740. doi:10.1002/pon.1130

Ang, S. Y., Uthaman, T., Ayre, T. C., Mordiffi, S. Z., Ang, E., & Lopez, V. (2018). Association between demographics and resilience - a cross-sectional study among nurses in Singapore. *International Nursing Review*. doi:10.1111/inr.12441

Babanataj, R., Mazdarani, S., Hesamzadeh, A., Gorji, M. H., & Cherati, J. Y. (2019). Resilience training: Effects on occupational stress and resilience of critical care nurses. *International Journal of Nursing Practice, 25*(1), e12697. doi:10.1111/ijn.12697

Bonamer, J. R., & Aquino-Russell, C. (2019). Self-care strategies for professional development: Transcendental meditation reduces compassion fatigue and improves resilience for nurses. *Journal for Nurses in Professional Development, 35*(2), 93-97. doi:10.1097/NND.0000000000000522

Brown, R., Wey, H., & Foland, K. (2018). The relationship among change fatigue, resilience, and job satisfaction of hospital staff nurses. *Journal of Nursing Scholarship, 50*(3), 306-313. doi:10.1111/jnu.12373

Cameron, F., & Brownie, S. (2010). Enhancing resilience in registered aged care nurses. *Australasian Journal on Ageing, 29*(2), 66-71. doi:10.1111/j.1741-6612.2009.00416.x

Chesak, S., Bhagra, A., Schroeder, D., Foy, D., Cutshall, S., & Sood, A. (2015). Enhancing resilience among new nurses: Feasibility and efficacy of a pilot intervention. *The Ochsner Journal, 15*(1), 38-44.

Cho, G. J., & Kang, J. (2017). Type D personality and post-traumatic stress disorder symptoms among intensive care unit nurses: The mediating effect of resilience. *PLoS ONE, 12*(4), e0175067. doi:10.1371/journal.pone.0175067

Craigie, M., Slatyer, S., Hegney, D., Osseiran-Moisson, R., Gentry, E., Davis, S., . . . Rees, C. (2016). A pilot evaluation of a mindful self-care and resiliency (MSCR) intervention for nurses. *Mindfulness, 7*(3), 764-774. doi:10.1007/s12671-016-0516-x

Delaney, M. C. (2018). Caring for the caregivers: Evaluation of the effect of an eight-week pilot mindful self-compassion (MSC) training program on nurses' compassion fatigue and resilience. *PLOS One, 13*(11), e0207261. doi:10.1371/journal.pone.0207261

Dolan, G., Strodl, E., & Hamernik, E. (2012). Why renal nurses cope so well with their workplace stressors. *Journal of Renal Care, 38*(4), 222-232. doi:10.1111/j.1755-6686.2012.00319.x

Foster, K., Cuzzillo, C., & Furness, T. (2018). Strengthening mental health nurses' resilience through a workplace resilience programme: A qualitative inquiry. *Journal of Psychiatric and Mental Health Nursing, 25*(5-6), 338-348. doi:10.1111/jpm.12467

Foster, K., Shochet, I., Wurfl, A., Roche, M., Maybery, D., Shakespeare-Finch, J., & Furness, T. (2018). On PAR: A feasibility study of the Promoting Adult Resilience programme with mental health nurses. *International Journal of Mental Health Nursing*. doi:10.1111/inm.12447

Gao, T., Ding, X., Chai, J., Zhang, Z., Zhang, H., Kong, Y., & Mei, S. (2017). The influence of resilience on mental health: The role of general well-being. *International journal of nursing practice, 23*(3). doi:10.1111/ijn.12535

García-Izquierdo, M., Meseguer de Pedro, M., Ríos-Risquez, M. I., & Sánchez, M. I. S. (2018). Resilience as a moderator of psychological health in situations of chronic stress (burnout) in a sample of hospital nurses: Resilience, burnout, and health among nurses. *Journal of Nursing Scholarship, 50*(2), 228-236. doi:10.1111/jnu.12367

Gillespie, B. M., Chaboyer, W., & Wallis, M. (2009). The influence of personal characteristics on the resilience of operating room nurses: A predictor study. *International Journal of Nursing Studies, 46*(7), 968-976. doi:10.1016/j.ijnurstu.2007.08.006

Gillespie, B. M., Chaboyer, W., Wallis, M., & Grimbeek, P. (2007). Resilience in the operating room: Developing and testing of a resilience model. *Journal of Advanced Nursing, 59*(4), 427-438. doi:10.1111/j.1365-2648.2007.04340.x

Guo, Y., Cross, W., Plummer, V., Lam, L., Luo, Y., & Zhang, J. (2017). Exploring resilience in Chinese nurses: A cross-sectional study. *Journal of Nursing Management, 25*(3), 223-230. doi:10.1111/jonm.12457

Hodges, H. F., Troyan, P. J., & Keeley, A. C. (2010). Career persistence in baccalaureate-prepared acute care nurses. *Journal of Nursing Scholarship, 42*(1), 83-91. doi:10.1111/j.1547-5069.2009.01325.x

Hsieh, H., Hung, Y., Wang, H., Ma, S., & Chang, S. (2016). Factors of resilience in emergency department nurses who have experienced workplace violence in Taiwan. *Journal of Nursing Scholarship, 48*(1), 23-30. doi:10.1111/jnu.12177

Hurst, S., & Koplin-Baucum, S. (2005). A pilot qualitative study relating to hardiness in ICU nurses: Hardiness in ICU nurses. *Dimensions of Critical Care Nursing, 24*(2), 97-100.

Itzhaki, M., Peles-Bortz, A., Kostistky, H., Barnoy, D., Filshtinsky, V., & Bluvstein, I. (2015). Exposure of mental health nurses to violence associated with job stress, life satisfaction, staff resilience, and post-traumatic growth. *International Journal of Mental Health Nursing, 24*, 403-412. doi:10.1111/inm.12151

Kornhaber, R. A., & Wilson, A. (2011). Building resilience in burns nurses: A descriptive phenomenological inquiry. *Journal of Burn Care & Research, 32*(4), 481-488. doi:10.1097/BCR.0b013e3182223c89

Kutluturkan, S., Sozeri, E., Uysal, N., & Bay, F. (2016). Resilience and burnout status among nurses working in oncology. *Annals of General Psychiatry, 15*(33). doi:10.1186/s12991-016-0121-3

Lanz, J. J., & Bruk-Lee, V. (2017). Resilience as a moderator of the indirect effects of conflict and workload on job outcomes among nurses. *Journal of Advanced Nursing, 73*(12), 2973-2986. doi:10.1111/jan.13383

Lin, L., He, G., Yan, J., Gu, C., & Xie, J. (2018). The effects of a modified mindfulness-based stress reduction program for nurses: A randomized controlled trial. *Workplace Health & Safety, 67*(3), 111-122. doi:10.1177/2165079918801633

Manzano García, G., & Ayala Calvo, J. C. (2012). Emotional exhaustion of nursing staff: Influence of emotional annoyance and resilience. *International Nursing Review, 59*(1), 101-107. doi:10.1111/j.1466-7657.2011.00927.x

Marie, M., Hannigan, B., & Jones, A. (2017). Resilience of nurses who work in community mental health workplaces in Palestine. *International Journal of Mental Health Nursing, 26*(4), 344-354. doi:10.1111/inm.12229

Matos, P. S., Neushotz, L. A., Quinn Griffin, M. T., & Fitzpatrick, J. J. (2010). An exploratory study of resilience and job satisfaction among psychiatric nurses working in inpatient units. *International Journal of Mental Health Nursing, 19*(5), 307-312. doi:10.1111/j.1447-0349.2010.00690.x

Mealer, M., Conrad, D., Evans, J., Jooste, K., Solyntjes, J., Rothbaum, B., & Moss, M. (2014). Feasibility and acceptability of a resilience training program for intensive care unit nurses. *American Journal of Critical Care, 23*(6), 97-105. doi:10.4037/ajcc2014747

Mealer, M., Jones, J., & Meek, P. (2017). Factors affecting resilience and development of posttraumatic stress disorder in critical care nurses. *American Journal of Critical Care, 26*(3), 184-192. doi:10.4037/ajcc2017798

Mealer, M., Jones, J., & Moss, M. (2012b). A qualitative study of resilience and posttraumatic stress disorder in United States ICU nurses. *Intensive Care Medicine, 38*(9), 1445-1451. doi:10.1007/s00134-012-2600-6

Mealer, M., Jones, J., Newman, J., McFann, K. K., Rothbaum, B., & Moss, M. (2012a). The presence of resilience is associated with a healthier psychological profile in intensive care unit (ICU) nurses: Results of a national survey. *International Journal of Nursing Studies, 49*, 292-299. doi:10.1016/j.ijnurstu.2011.09.015

Mills, J., Woods, C., Harrison, H., Chamberlain-Salaun, J., & Spencer, B. (2017). Retention of early career registered nurses: The influence of self-concept, practice environment and resilience in the first five years post-graduation. *Journal of Research in Nursing, 22*(5). doi:10.1177/1744987117709515

Rushton, C., Batcheller, J., Schroeder, K., & Donohue, P. (2015). Burnout and resilience among nurses practising in high-intensity settings. *American Journal of Critical Care, 24*(5), 412-420. doi:10.4037/ajcc2015291

Russo, C., Calo, O., Harrison, G., Mahoney, K., & Zavotsky, K. (2018). Resilience and coping after hospital mergers. *Clinical Nurse Specialist, 32*(2), 97-102. doi:10.1097/NUR.0000000000000358

Sauer, P. A., & McCoy, T. P. (2017). Nurse bullying: Impact on nurses' health. *Western Journal of Nursing Research, 39*(12), 1533-1546. doi:10.1177/0193945916681278

Sellers, K., Riley, M., Denny, D., Rogers, D., Havener, J., Rathbone, T., & Gomez-Di Cesare, C. (2019). Retention of nurses in a rural environment: The impact of job satisfaction, resilience, grit, engagement, and rural fit *Online Journal of Rural and Nursing Health Care, 19*(1). doi:10.14574/ojrnhc.v19i1.547

Slatyer, S., Craigie, M., Heritage, B., Davis, S., & Rees, C. (2018). Evaluating the effectiveness of a brief mindful self-care and resiliency (MSCR) intervention for nurses: A controlled trial. *Mindfulness*, 1-13. doi:10.1007/s12671-017-0795-x

Slatyer, S., Craigie, M., Rees, C., Davis, S., Dolan, T., & Hegney, D. (2018). Nurse experience of participation in a mindfulness-based self-care and resiliency intervention. *Mindfulness*. doi:10.1007/s12671-017-0802-2

Traylor, P. (2018). One unit's attempt at an inter professional multimodal resiliency training program. *Academy of Medical-Surgical Nurses, 27*(6), 1-6.

Tubbert, S. J. (2016). Resiliency in emergency nurses. *Journal of Emergency Nursing, 42*(1), 47-52. doi:10.1016/j.jen.2015.05.016

Walker, M. J. (2006). The effects of nurses' practicing of the HeartTouch Technique on perceived stress, spiritual well-being, and hardiness. *Journal of Holistic Nursing, 24*(3), 164-175. doi:10.1177/0898010105283343

Wang, L., Tao, H., Bowers, B. J., Brown, R., & Zhang, Y. (2018). Influence of social support and self-efficacy on resilience of early career registered nurses. *Western Journal of Nursing Research*, 193945916685712. doi:10.1177/0193945916685712

Wei, W., & Taormina, R. J. (2014). A new multidimensional measure of personal resilience and its use: Chinese nurse resilience, organizational socialization and career success. *Nursing Inquiry, 21*(4), 346-357. doi:10.1111/nin.12067

Williams, J., Hadjistavropoulos, T., Ghandehari, O. O., Malloy, D. C., Hunter, P. V., & Martin, R. R. (2016). Resilience and organisational empowerment among long-term care nurses: Effects on patient care and absenteeism. *Journal of Nursing Management, 24*(3), 300-308. doi:10.1111/jonm.12311

Yu, M., & Lee, H. (2018). Impact of resilience and job involvement on turnover intention of new graduate nurses using structural equation modeling. *Japan Journal of Nursing Science, 15*(4), 351-362. doi:10.1111/jjns.12210

Zander, M., Hutton, A., & King, L. (2013). Exploring resilience in paediatric oncology nursing staff. *Collegian, 20*, 17-25. doi:10.1016/j.colegn.2012.02.002

Zheng, Z., Gangaram, P., Xie, H., Chua, S., Ong, S. B. C., & Koh, S. E. (2017). Job satisfaction and resilience in psychiatric nurses: A study at the Institute of Mental Health, Singapore. *International Journal of Mental Health Nursing, 26*(6), 612-619. doi:10.1111/inm.12286

Zou, G., Shen, X., Tian, X., Liu, C., Li, G., Kong, L., & Li, P. (2016). Correlates of psychological distress, burnout, and resilience among Chinese female nurses. *Industrial Health, 54*(5), 389-395. doi:10.2486/indhealth.2015-0103

Supplementary Table 6. Summary of JBI (2014) Levels of Evidence tool

	Level of Evidence for effectiveness (quantitative studies)	Level of evidence for meaningfulness (qualitative studies)
1	Experimental designs; systematic review of randomised control trials (RCTs), systematic review of RCTs and other study designs, RCT, pseudo-RCT	Qualitative or mixed-methods systematic review
2	Quasi-experimental designs; systematic review of quasi-experimental studies, systematic review of quasi-experimental and other lower study designs, quasi experimental prospectively controlled study, pre-test – post-test, historic/retrospective control group study	Qualitative or mixed-methods synthesis
3	Observational – analytic designs; systematic review of comparative cohorts, systematic review of cohort and other lower study designs, cohort study with control group, case-controlled study, observational study without a control group	Single qualitative study
4	Observational- descriptive studies; systematic review of descriptive studies, cross-sectional study, case series, case study	Systematic review of expert opinion
5	Expert opinion and bench research; systematic review of expert opinion, expert consensus, bench research/ single expert opinion	Expert opinion

3.6 Supplementary Material to the Integrative Review Update

Supplementary Table 7. Summary included studies for integrative review update

Author, Year and Country	JBI Level of Evidence	Aim	Design	Sample Size	Synopsis of Key Findings Relating to Resilience	Themes
Genismore, Maduro, Morgan, McGee & Zimbro (2020) USA	4	To explore the influence of nurse work characteristics, resiliency, and burnout on retention, and patient quality and safety	Quantitative cross-sectional survey Instrument: Connor-Davidson Resilience Scale 10 item scale	507 American Registered Nurses recruited online	-Resilience moderated the direct effects of nurse practice environment on retention -For nurses with below-average resilience holding a positive perception of their unit manager improved nurse retention -For nurses with above-average resilience positive perceptions of hospital management and organisational support improved nurse retention	3
Guo, Plummer, Lam, Wang, Cross & Wang (2019) Australia & China	4	To investigate burnout among nurses from Australia and China and explore the effects of resilience and turnover intention on nurse burnout between the two countries	Quantitative comparative cross-sectional design Instrument: Connor-Davidson Resilience Scale 25 item scale	100 Australian nurses from a major public health service 197 Chinese nurses from one tertiary hospital	-There were significant differences in mean resilience levels between Australian and Chinese participants -Resilience had a significant negative correlation with total score for burnout in the Australian and Chinese samples -Severe burnout was significantly associated with low resilience levels in the Chinese sample -Resilience did not significantly influence burnout in the Australian sample	1
Kim, Park, Kim & Kim (2019) South Korea	4	To test a hypothetical path model estimating the	Quantitative cross-sectional survey	310 nurses from one tertiary hospital	-Resilience had significant direct and total effects on wellbeing -Resilience had significant indirect effects on wellbeing via burnout, compassion satisfaction and job satisfaction with	1

		influence of resilience and gratitude disposition on well-being in Korean clinical nurses and to verify the mediating effects of burnout, compassion satisfaction and job satisfaction using a multi-mediation model.	Instrument: Dispositional Resilience Scale-15, 24 item scale		burnout, compassion satisfaction and job satisfaction partially mediating the path of resilience -> wellbeing -Low resilience scores were associated with being unmarried and younger	
Walpita & Aramepola (2020) Sri Lanka	4	To find how resilience level is related to work performance of nurses	Quantitative cross-sectional survey Instrument: Resilience at Work-Sinhala Scale 24 item scale	213 nurses from secondary and tertiary hospitals	-Strong positive linear relationship of resilience levels at work and (self-rated) performance of nurses -All six subscales of the Resilience at Work-Sinhala Scale included in the model predicted (self-rated) nurse performance significantly	1

Supplementary Table 8. Cross-sectional/descriptive study appraisals for updated search

Study	Q1 Were the criteria for inclusion in the sample clearly defined? Desirable but not essential	Q2 Were the study subjects and setting described in detail? Essential	Q3 Was the exposure measured in a valid and reliable way? Desirable but not essential. It was agreed that exposure would be considered to be any measure of stress, PTSD, anxiety, depression or burnout or other	Q4 Were objective, standard criteria used for measurement of the condition? Essential	Q5 Were confounding variables identified? Desirable but not essential it was agreed that identification could include discussion of factors only as well as clear identification	Q6 Were strategies to deal with confounding variables stated? Desirable but not essential for studies ascribing causality	Q7 Were the outcomes measured in a valid and reliable way? Essential it was agreed that use of a validated resilience scale would be considered as appropriate outcome measure	Q8 Was appropriate statistical analysis used? Essential	Peer review journal? Essential	Score
(Falavarjani et al., 2019)	×	×	✓	✓	✓	✓	✓	×	✓	6/9
(Gensimore et al., 2020)	✓	×	✓	✓	✓	×	✓	✓	✓	7/9
(Guo et al., 2019)	✓	✓	✓	✓	✓	×	✓	✓	✓	8/9
(Harris et al., 2020)	✓	✓	N/A	✓	✓	×	✓	×	✓	7/8
(Jose et al., 2020)	×	×	✓	✓	✓	×	✓	×	✓	5/9
(Kim et al., 2019)	✓	✓	✓	✓	✓	✓	✓	✓	✓	9/9
(Walpita et al.,	✓	✓	N/A	✓	✓	×	✓	✓	✓	7/8

Study	Q1 Were the criteria for inclusion in the sample clearly defined? Desirable but not essential	Q2 Were the study subjects and setting described in detail? Essential	Q3 Was the exposure measured in a valid and reliable way? Desirable but not essential. It was agreed that exposure would be considered to be any measure of stress, PTSD, anxiety, depression or burnout or other	Q4 Were objective, standard criteria used for measurement of the condition? Essential	Q5 Were confounding variables identified? Desirable but not essential it was agreed that identification could include discussion of factors only as well as clear identification	Q6 Were strategies to deal with confounding variables stated? Desirable but not essential for studies ascribing causality	Q7 Were the outcomes measured in a valid and reliable way? Essential it was agreed that use of a validated resilience scale would be considered as appropriate outcome measure	Q8 Was appropriate statistical analysis used? Essential	Peer review journal? Essential	Score
(Yu et al., 2020)	✓	✓	✓	✓	✓	✓	✓	×	✓	8/9
(Tabakakis et al., 2019)	×	✓	✓	✓	×	×	✓	×	✓	5/9
(Öksüz et al., 2019)	×	✓	N/A	✓	×	×	✓	×	✓	4/7

Supplementary Table 9. Quasi-experimental study appraisals for updated search

Study	Q1 Is it clear in the study what is the 'cause' and what is the 'effect' (i.e. there is no confusion about which variable comes first) Essential	Q2 Were the participants included in any comparisons similar? Desirable but not essential	Q3 Were the participants included in any comparisons receiving similar treatment/care, other than the exposure or intervention of interest? Desirable but not essential	Q4 Was there a control group? Desirable but not essential	Q5 Were there multiple measurements of outcomes both pre and post the intervention/ exposure? Essential	Q6 Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analysed? Desirable but not essential	Q7 Were the outcomes of participants included in any comparisons measured in the same way? Essential	Q8 Were outcomes measures in a reliable way? Essential	Q9 Was appropriate statistical analysis used? Essential It was agreed that studies may be underpowered or have a significant attrition rate will be excluded	Peer review journal? Essential	Score
(Rushton et al., 2021)	✓	×	N/A	×	×	×	N/A	✓	×	✓	3/8
(Spiva et al., 2020)	✓	×	×	✓	×	✓	✓	✓	×	✓	6/10

Supplementary Table 10. Randomised control trial study appraisals for updated search

Study	Q1 Was true randomisation used for assignment to treatment groups? Essential	Q2 Was allocation to treatment concealed? Essential	Q3 Were treatment groups similar at baseline? Essential	Q4 Were participants blind to treatment assignment Desirable but not essential based on whether blinding was possible	Q5 Were those delivering treatment blind to treatment assignment? Desirable but not essential based on whether blinding was possible	Q6 Were outcome assessors blind to treatment assignment? Desirable but not essential	Q7 Were treatment groups treated identically other than the intervention of interest? Essential?	Q8 Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analysed? Essential	Q9 Were participants analysed in the groups to which they were randomised? Essential	Q10 Were outcomes measured in the same way for treatment groups? Essential	Q11 Were outcomes measured in a reliable way? Essential	Q12 Was appropriate statistical analysis used? Essential	Q13 Was the trial design appropriate, and any deviations from the standard RCT design (individual randomisation, parallel groups) accounted for in the conduct and analysis of the trial? Essential	Peer review journal Essential	Score
(Pehlivan et al., 2020)	×	×	×	×	×	×	×	✓	✓	✓	✓	×	×	✓	5/14

Supplementary Table 8-10 References

Falavarjani, M. F., & Yeh, C. J. (2019). Optimism and distress tolerance in the social adjustment of nurses: Examining resilience as a mediator and gender as a moderator. *Journal of Research in Nursing*, *24*(7), 500-512. doi:10.1177/1744987119839102

Gensimore, M. M., Maduro, R. S., Morgan, M. K., McGee, G. W., & Zimbro, K. S. (2020). The effect of nurse practice environment on retention and quality of care via burnout, work characteristics, and resilience: A moderated mediation model. *Journal of Nursing Administration*, *50*(10), 546-553. doi:10.1097/NNA.0000000000000932

Guo, Y., Plummer, V., Lam, L., Wang, Y., Cross, W., & Zhang, J. (2019). The effects of resilience and turnover intention on nurses' burnout: Findings from a comparative cross-sectional study. *Journal of Clinical Nursing*, *28*(3-4), 499-508. doi:10.1111/jocn.14637

Harris, M. D., Williams, L. M., & Duke, R. (2020). The millennial engagement, resiliency and retention study: What does your millennial advanced practice registered nurse workforce really want? *Journal of the American Association of Nurse Practitioners*. doi:10.1097/JXX.0000000000000535

Jose, S., Dhandapani, M., & Cyriac, M. C. (2020). Burnout and resilience among frontline nurses during COVID-19 pandemic: A cross-sectional study in the emergency department of a tertiary care center, North India. *Indian Journal of Critical Care Medicine*, *24*(11), 1081-1088. doi:10.5005/jp-journals-10071-23667

Kim, S. R., Park, O. L., Kim, H. Y., & Kim, J. Y. (2019). Factors influencing well-being in clinical nurses: A path analysis using a multi-mediation model. *Journal of Clinical Nursing*, *28*(23-24), 4549-4559. doi:10.1111/jocn.15045

Öksüz, E., Demiralp, M., Mersin, S., Tüzer, H., Aksu, M., & Sarıkoc, G. (2019). Resilience in nurses in terms of perceived social support, job satisfaction and certain variables. *Journal of Nursing Management*, *27*(2), 423-432. doi:10.1111/jonm.12703

Rushton, C. H., Swoboda, S. M., Reller, N., Skarupski, K. A., Prizzi, M., Young, P. D., & Hanson, G. C. (2021). Mindful ethical practice and resilience academy: Equipping nurses to address ethical challenges. *American Journal of Critical Care*, *30*(1), e1-e11. doi:10.4037/ajcc2021359

Spiva, L., Davis, S., Case-Wirth, J., Hedenstrom, L., Hogue, V., Box, M., Berrier, E., Jones, C., Thurman, S., Knotts, K., & Ahlers, L. (2020). The effectiveness of charge nurse training on leadership style and resiliency. *Journal of Nursing Administration*, *50*(2), 95-103. doi:10.1097/NNA.0000000000000848

Tabakakis, C., McAllister, M., Bradshaw, J., & To, Q. G. (2019). Psychological resilience in New Zealand registered nurses: The role of workplace characteristics. *Journal of Nursing Management*, *27*(7), 1351-1358. doi:10.1111/jonm.12815

Walpita, Y. N., & Arambepola, C. (2020). High resilience leads to better work performance in nurses: Evidence from South Asia. *Journal of Nursing Management*, *28*(2), 342-350. doi:10.1111/jonm.12930

Yu, F., Cavadino, A., Mackay, L., Ward, K., King, A., & Smith, M. (2020). Physical activity and personal factors associated with nurse resilience in intensive care units. *Journal of Clinical Nursing*, *29*(17-18), 3246-3262. doi:10.1111/jocn.15338

Chapter 4. Methodology

4.1 Introduction

This chapter presents a description of the methodology, research processes and the methods utilised to undertake the research as well as justification for the selection of the methodology and the methods. This research explored resilience amongst nurses working in a value-based organisation using a mixed methods design. Structurally, this chapter consists of six main sections with relevant sub-sections. In the first section, the research methodology is justified and discussed, followed by a description of the research design outlining and justifying the quantitative and qualitative components of the study including recruitment, data collection, and data analysis. Following the description of quantitative and qualitative components of the study, the process for data integration is outlined. Finally, the ethical considerations in the conduct of the study are described.

4.2 Methodology

Given the complexity of individual resilience previously outlined in the concept analysis in Chapter Two, and the study aim and objectives, a mixed methods design was considered appropriate in order to provide a fuller understanding of nurse resilience than quantitative or qualitative methods alone could achieve. Tashakkori & Teddlie, (2010) argue that divergence of results through the combination of quantitative and qualitative data can often provide greater insight into complex aspects of a phenomenon that lead to a more in-depth investigation. The mixed methods approach utilised in this study enabled a detailed picture of resilience in the study population to be generated. The quantitative data provided a

measurable resilience level using a validated and widely used tool (Connor & Davidson, 2003) and tested for associations between resilience levels and other variables, and the qualitative data gave meaning and understanding as to how the organisational values affected nurse resilience.

Mixed methods research integrates qualitative and quantitative data and is recognised as the third methodological or research paradigm (Creswell & Creswell, 2018; Johnson et al., 2007). Utilising mixed methods often provides more '…informative, complete, balanced and, useful research results' (Johnson et al., 2007, p. 129) compared to quantitative or qualitative methods used in isolation. This study provides a deeper understanding of nurse resilience through utilising mixed methods. Mixed methods research is particularly relevant and useful in healthcare, for research that examines complex and multifaceted issues such as nurse resilience (Halcomb & Hickman, 2015; O'Cathain et al., 2007; Tariq & Woodman, 2013). The broad approach and understanding gained by using mixed methods fits well with the holistic perspective of the nursing profession and is important when considering resilience given the many factors which may be of influence (Chiang-Hanisko et al., 2016; Morse, 2017; Morse & Chung, 2003).

In order to help guide mixed methods designs a number of typologies have been developed (Teddlie & Tashakkori, 2009). No exhaustive list of mixed method typologies exists and the types of designs utilised in the mixed methods paradigm continue to evolve (Leech & Onwuegbuzie, 2009; Nastasi et al., 2010; Tashakkori & Teddlie, 2010). A broad range of criteria are employed in the literature to classify mixed methods design (Nastasi et al., 2010; Tashakkori & Teddlie, 2010). Leech & Onwuegbuzie, (2009) suggested three key dimensions

which characterise mixed methods designs; the level of mixing, time orientation, and the emphasis of approaches. More specifically these three dimensions encompass if the methods are fully or partially mixed, whether methods are used concurrently or sequentially and whether the quantitative or qualitative approaches have equal versus dominant status (Leech & Onwuegbuzie, 2009). In a literature review of mixed methods design typologies Nastasi et al., (2010) found a broad range of criteria to classify studies and summarised the existing typologies as Types I through to VI distinguishing between basic and complex typologies.

Specific notation can be used to convey key aspects of mixed methods research design and enable researchers to easily communicate the procedures utilised (Creswell & Creswell, 2018). It was first developed by a nurse researcher Morse (1991) and has since been further developed (Creswell & Creswell, 2018; Morse & Niehaus, 2009; Nastasi et al., 2007; Plano Clark & Creswell, 2008; Tashakkori & Teddlie, 1998). Notation includes the shorthand of 'qual' and 'quan' which indicate qualitative and quantitative respectively (Creswell & Creswell, 2018; Plano Clark & Creswell, 2008). The qualitative data and quantitative data may be equally emphasised (QUAL QUAN), with the use of capitalisation indicating an emphasis on a particular method while the use of a lowercase indicates a lesser emphasis on the method. Other forms of notation can be used to describe the order of data collection however, these do not help to describe the design of this study. It is important to note that simultaneous data collection, also known as concurrent data collection, refers to the independence of the quantitative and qualitative phases of the study (Onwuegbuzie & Collins, 2007; Schoonenboom & Johnson, 2017). In contrast, sequential data collection

requires a dependence between the two phases with the first phase informing the design of subsequent component/s of the study (Fetters et al., 2013; Ivankova et al., 2006).

Mixed methods research employs the triangulation of methods to gain a more complete picture of a research question or problem (O'Cathain et al., 2010). Teddlie & Tashakkori, (2009) state 'triangulation refers to the combinations and comparisons of multiple data sources, data collection and analysis procedures, research methods, investigators and inferences that occur at the end of a study' (pp.27). While triangulation refers to the use of multiple sources or methods, integration, which is an important component in mixed methods research, is a process where researchers intentionally draw together quantitative and qualitative approaches (Creswell, 2015; Guetterman et al., 2015; Younas et al., 2020). Despite being a hallmark of mixed methods research, integration is not clearly developed or practised and when it occurs, integration varies based on the design used (Guetterman et al., 2015; Halcomb & Hickman, 2015; Ivankova et al., 2006; O'Cathain et al., 2010). There is guidance in the literature around how to integrate data for different mixed methods designs including the concurrent design used in this study (Fetters et al., 2013; Ivankova et al., 2006).

4.3 Design

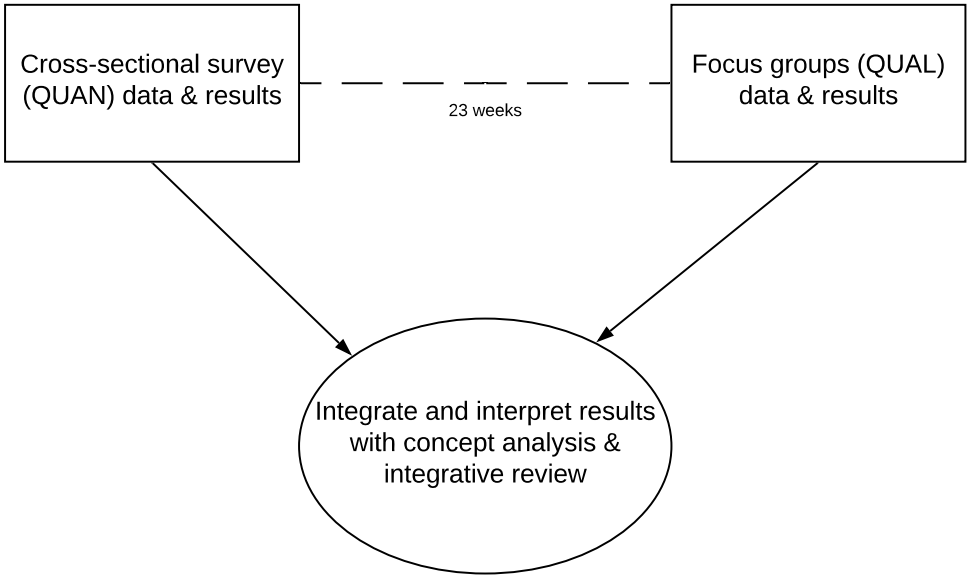
In this study, a partially mixed, time-lapsed concurrent, equal status design (QUAN QUAL) was used (Leech & Onwuegbuzie, 2009) where quantitative data and qualitative were collected to address the study aim and objectives (Teddlie & Tashakkori, 2009). For pragmatic reasons, these planned and implemented quantitative and qualitative phases, including participant recruitment and researcher availability, were conducted with a time-

lapse. To address objective 3, data were collected via a cross-sectional survey, which obtained information on participant characteristics and measured resilience levels using a validated objective tool. Participant's level of agreement with the hospital values was also assessed in the questionnaire, partially exploring the role the values of the organisation played in individual resilience (objective 5).

The concurrent design utilised refers to the relative independence of the two data collection phases (Onwuegbuzie & Collins, 2007; Schoonenboom & Johnson, 2017) rather than completion of the two phases at the same time (Figure 2). This allowed the investigator to utilise the opportunistic nature of mixed methods design, with the ability for the design to evolve as data were collected and analysed (Teddlie & Tashakkori, 2009). The questions to guide the focus groups were established prior to data collection, with the possibility of being adapted or added to if any preliminary results from the cross-sectional survey warranted further exploration. The qualitative data were key to meeting the study objectives of exploring nurses' perceptions of resilience (objective 4) and the role the values of the organisation played in individual resilience (objective 5).

Figure 2

Concurrent time-lapsed equal status design



The concurrent time-lapsed design utilised integration at the method, interpretation, and reporting level (Fetters et al., 2013). Integration occurred at the method level with integration through connecting, which is when one type of data links with the other through the sampling frame (Fetters et al., 2013). In this study, focus group participants were selected from respondents to the questionnaire. In keeping with the concurrent design, most integration took place after data collection at the interpretation and reporting level (Fetters et al., 2013). For this study, two data sources, the quantitative and qualitative results, are integrated (objective 6) and considered in the context of the concept analysis and integrative review, to build a more complete picture of the relationship between organisational values and nurse resilience.

4.3.1 Site Selection

In order to investigate the impact of organisational values on nurse resilience a study site with clearly defined values was required. Organisational values are common across Australian hospitals; a faith-based hospital was selected for the study site. This was due to the strong emphasis placed upon the organisational values at the study site, which are applied from initial recruitment through to everyday working life at the hospital, with the values being promoted and celebrated with regular events. A faith-based organisation self identifies through expression of religion, has values which are based on a particular faith or beliefs and has a mission that is based on the social values of its faith (Bielefeld & Cleveland, 2013). In contrast, although secular organisations have values they may not draw on a particular faith to guide these. Values held by secular and faith-based organisations often overlap. For example, “compassion” is a value frequently seen in hospitals values. A faith-based organisation will draw upon religious scripture and teachings in relation to the value of compassion, whereas a secular organisation uses a non-religious understanding of the concept of compassion.

4.3.2 Study Site

The study site was a 578-bed private not-for-profit hospital with strong faith-based values which are explicitly described in the vision, mission, and values statements. A range of medical and surgical services are offered including oncology, maternity, intensive care, coronary care, and a wide range of elective surgery. The hospital does not have an emergency department. Surgical specialities are a main focus, and as such there are twenty operating theatres and two cardiac and vascular intervention laboratories. The hospital had 94,600 patient presentations in 2017/2018, 72,200 of these were inpatient presentations

and 68% (n=49,216) were surgical patients. Approximately 2,900 babies a year are born at the study hospital. There is a high patient turnover with an average inpatient length of stay of 2.11 days.

The study hospital was founded by the Sisters of a Catholic religious order. Eight Sisters from the Congregation of the Sisters of St John of God which was founded in Wexford, Ireland arrived in Perth, Western Australia in 1895 (St John of God Healthcare, 2018). In 1898 the Sisters opened the study hospital as well as establishing a number of other hospitals, convents and schools in Western Australia, Victoria and New South Wales (St John of God Healthcare, 2018). The Congregation of the Sisters of St John of God were inspired by the work of their patron saint, St John of God, nursing those in poverty (St John of God Healthcare, 2018). The core values of the hospital are;

- Hospitality: A welcoming openness, providing spiritual comfort to all,
- Compassion: Feeling with others and striving to understand their lives, experiences, and suffering with a willingness to reach out in solidarity,
- Respect: Treasuring the unique dignity of every person and recognising the sacredness of all creation,
- Justice: A balanced and fair relationship with self, neighbour, all of creation, and with God,
- Excellence: Striving for excellence in the services we provide.

These values stem from Christian scripture and provide the hospital and those employed in it with a clear faith-based vision and mission (St John of God Healthcare, 2019). At the time of data collection, the hospital had a Director of Mission who was responsible for ensuring the hospital remained true to its core values.

4.3.3 Sample Inclusion and Exclusion Criteria

All enrolled and registered nurses who were employed at the study hospital on a part-time or full-time basis, who directly cared for patients during the survey period, were eligible to participate in the resilience study. Agency nurses, casual nurses, and student nurses were excluded from the study, as were nurses above a clinical nurse level and nurses who did not directly provide care to patients. These exclusion criteria were applied as the focus for the study was on nurses familiar with the hospital and who directly delivered patient care. Dual registered nurse/midwives were eligible to participate if they were working as a nurse. Dual registered nurse/midwives working as a midwife were excluded from the study. Potential participants were identified independently through the Human Resources Department (HR) at the study hospital and all eligible nurses were sent a questionnaire (Phase 1). At the end of the questionnaire, participants were invited to indicate their willingness to take part in the qualitative component (Phase 2) of the study by participating in a focus group. Participants who were interested returned a slip with their preferred method of contact with their completed questionnaire.

4.4 Phase One – Quantitative Data

4.4.1 Instrument

The questionnaire (Appendix 1) collected participant characteristics including age, type of registration, highest nursing qualification, years of experience as a nurse both in total and at the study site, clinical area, and past clinical experience, in order to profile the participant sample and provide contextual analyses for the following data collections. To address the specific context of the faith-based hospital, participants were asked if they could identify the five core values at the study site from a list of ten possible values. Participants were

then presented with two questions utilising Likert scales. The first question asked to what extent they agreed the hospital values were important. The second question asked if they agreed with the hospital values. The questionnaire concluded with the 25-item Connor-Davidson Resilience Scale (CD-RISC) (Connor & Davidson, 2003) to provide a measure of individual resilience.

The concept analysis presented in Chapter Two identified the CD-RISC as a scale that recognises and measures the key attributes of nurse resilience, hence the use in this study (Cooper et al., 2020). The CD-RISC is a standalone validated and reliable tool used to measure individual resilience level. This self-report scale consists of 25 items with total scores ranging from 0 to 100. A higher score reflects a greater level of resilience. The CD-RISC has been previously assessed for reliability (Cronbach's α 0.89) and has a test-retest correlation of 0.87 (Connor & Davidson, 2003). The CD-RISC consists of five subscales which the authors refer to as factors (Table 1). Abbreviated versions of the CD-RISC have also been developed including the CD-RISC 10 (Campbell-Sills & Stein, 2007) which tends to be used when multiple psychological scales are utilised (Craigie et al., 2016; Itzhaki et al., 2015; Slatyer, Craigie, Heritage, et al., 2018). The focus of this study was on resilience alone therefore, the most robust scale of measurement which had been used in other nursing samples was the priority in scale selection.

Table 1

CD-RISC subscales (Connor & Davidson, 2003)

Subscale	Description
Factor 1	The notion of personal competence, high standards, and tenacity
Factor 2	Trust in one's instincts, tolerance of negative affect, and the strengthening effects of stress
Factor 3	The positive acceptance of change, and secure relationships
Factor 4	Control
Factor 5	Spiritual influences

In a methodological review of 19 resilience measurement scales the CD-RISC along with two other scales, the Resilience Scale for Adults (Friborg et al., 2003) and the Brief Resilience Scale (Smith et al., 2008), were assessed to have the best psychometric ratings (Windle et al., 2011). The CD-RISC 10 which is the short version of the CD-RISC was also reviewed and had a lower psychometric rating than the complete scale (Windle et al., 2011). There were no instances in the studies reviewed for the concept analysis (Chapter Two) of the Brief Resilience Scale being employed to measure resilience in nurses and only four studies that used the Resilience Scale for Adults. Six studies were identified in the literature that utilised The Resilience Scale (Wagnild & Young, 1993) however, this scale has a lower psychometric rating than the CD-RISC (Windle et al., 2011).

In the nursing literature, the CD-RISC is the most widely used measurement of resilience featuring in at least 26 reported studies (Chesak et al., 2015; Craigie et al., 2016; Falavarjani & Yeh, 2019; Gabriel et al., 2011; Gao et al., 2017; Gillespie et al., 2009; Gillespie et al., 2007; Guo et al., 2017; Guo et al., 2019; Harris et al., 2020; Hegney, Eley, et al., 2015; Hegney, Rees, et al., 2015; Hudgins, 2016; Itzhaki et al., 2015; Jose et al., 2020; Manzano

García & Ayala Calvo, 2012; Mealer et al., 2014; Mealer et al., 2017; Mealer et al., 2012a; Rushton et al., 2015; Russo et al., 2018; Son & Ham, 2020; Spiva et al., 2020; Tahghighi et al., 2019; Wang et al., 2017; Yu et al., 2020). In the CD-RISC resilience is considered as a multi-dimensional and variable characteristic (Connor & Davidson, 2003) which is consistent with interpretation and application of the concept of resilience in the nursing literature. It was therefore considered the most appropriate tool to allow comparisons with other nursing samples.

4.4.2 Data Collection

Of the 787 eligible nurses found in the database provided by HR at the study hospital, 29 were identified as having left the organisation or being unavailable during the survey period due to long service leave, parental leave, and other types of extended leave. This left an eligible hospital nursing population of N=758 during the four-week survey period 7th August 2017 to 3rd September 2017. A minimum sample size of n=255 participants was calculated to reflect the true values of the hospital nursing population of N=758 at a 95% confidence level and 5% confidence interval (margin of error) (National Statistical Service, 2017). Questionnaires were individually addressed to potential participants and each questionnaire was given an identifying number so that non-responders could be sent reminders two weeks after initial distribution (Cooper & Brown, 2017). A participant information sheet, outlining the purpose and nature of the study was enclosed with the questionnaire stating that consent to participate was inferred through completion and return of the questionnaire. It was estimated the questionnaire would take around ten minutes to complete. In recognition of the time asked of participants a tea bag and chocolate bar were enclosed with the initial questionnaire.

4.4.3 Data Analysis

The data from the paper-based surveys were first entered into Qualtrics (Qualtrics, 2017) as the working database, with a random sample of 20% selected and audited to ensure accuracy in the initial data entry process. The full data set was then exported to Stata (StataCorp, 2015a) for statistical analysis. The significance level for the study was set at $p<0.05$. Descriptive statistics including frequencies, ranges, and percentages were used to represent the characteristics of the participants including age, gender, employment status, years of experience working as a nurse, speciality worked in, highest academic qualification, and type of registration held. This analysis conveys the sample profile and establishes the representativeness of the sample compared to the study site population. The CD-RISC scores were calculated following the instructions in the CD-RISC manual (Davidson & Connor, 2017). Scoring of the scale is based on summing the total of all items, each of which is scored from 0-4 (Davidson & Connor, 2017). To give context to the mean resilience level in this study comparisons were made to resilience levels found in other nursing populations published in the literature where the CD-RISC had also been utilised.

Tests of association were performed with continuous variables to determine if any relationship existed between resilience level as measured by the CD-RISC and age, total years of experience as a nurse, and total number of years working as a nurse at the organisation. The distribution of all four variables were assessed to determine which type of test of association was appropriate to apply. When the parameters for normal distribution were met Pearson's correlation was applied as the appropriate parametric test (Ali & Bhaskar, 2016; Du Prel et al., 2010; Nayak & Hazra, 2011). For non-parametric distribution

Spearman's rank order correlation was utilised (Ali & Bhaskar, 2016; Du Prel et al., 2010; Nayak & Hazra, 2011).

Comparisons between groups including type of registration held, highest nursing qualification, and employment status are made using inferential statistics. To make comparisons between two or more groups, one-way analysis of variance (ANOVA) were used (Ali & Bhaskar, 2016; Du Prel et al., 2010; Nayak & Hazra, 2011). The dependent variable in all three ANOVAs performed was resilience level. For comparison of the mean resilience level based on type of registration held, three registration categories were used; enrolled nurse, registered nurse, and dual registered nurse/midwife. Highest nursing qualification divided participants into six independent groups: Bachelor of nursing degree (includes a bachelor of nursing science), postgraduate certificate, diploma of enrolled nursing or hospital certificate of enrolled nursing, postgraduate diploma, hospital trained registered nurse, and masters nursing degree. Lastly, two groups – full-time and part-time - compared the mean resilience level based on employment status. Alongside each ANOVA, a Bartlett's test was applied to ensure the assumption of equality of variance was met. Bonferroni adjustment was then applied to see if any significant difference between groups existed (StataCorp, 2015b).

The 15 specialities respondents identified with were categorised into four clinical areas; ward, critical care, low acuity, or theatres then subject to a Chi-Square analysis. Checks were made to assess if the three assumptions required to test for association between these categorical variables using Chi-Square were met, that is the cells were mutually exclusive, the cells were exhaustive and the expected frequencies were sufficiently large with no more

than 20% of the expected frequencies <5 (Allen et al., 2014). If the required assumptions for expected frequencies were not met Fisher's exact test was applied (Allen et al., 2014).

To assess the relationship between the organisational values and participants' resilience levels a number of statistical tests were performed. Descriptive statistics were employed to establish what percentage of participants were able to identify the five core organisational values from a list of ten possible organisational values. Two one-way analyses of variance (ANOVA) were performed to assess the relationship between participant's resilience levels (CD-RISC) and measures indicating 1) agreement with organisational values, and 2) importance of organisational values. The dependent variable in both ANOVAs was resilience level, while the independent variables were treated as ordinal variables by applying polynomial contrasts to the five levels of agreement (strongly agree - strongly disagree) (Kohler & Kreuter, 2012). Polynomial contrasts included linear, quadratic, cubic, and quartic (i.e. all contrasts up to n-1 levels of agreement). Chi-Square was used to test for any significant difference between resilience level and number of values correctly selected with resilience scores categorised as <sample mean or $\geq$ sample mean and categorising the number of organisational values participants had correctly identified (all five correct, four correct, or three correct).

Subscale analysis was undertaken for variables where statistically significant associations based on total CD-RISC scores were found. The distribution of all five subscales were tested prior to conducting analysis. To make comparisons between two or more groups, one-way analysis of variance (ANOVA) were used (Ali & Bhaskar, 2016; Du Prel et al., 2010; Nayak & Hazra, 2011). Alongside each ANOVA, Bartlett's test was applied to ensure the assumption

of equality of variance was met. Bonferroni adjustment was then applied to see if any significant difference between groups existed (StataCorp, 2015b).

4.5 Phase Two – Qualitative Data

4.5.1 Focus Group Guide

Semi-structured focus groups were selected to support the collection of qualitative data and outline topics and issues for discussion. The following questions based on the study objectives and knowledge of the existing literature explored through the concept analysis and integrative review guided the focus group discussions:

- Introductions – establish names, age, clinical area currently working in, registration, and number of years of employment at current hospital.
- What kind of stresses do you face at work?
- How do you cope with the stresses of work?
- What do you think resilience is?
- How important do you think it is to be resilient as a nurse?
- What do you think helps nurses develop resilience?
- What do you think threatens or erodes resilience in nurses?
- Do you feel the values of a hospital can have an effect on resilience?
- Has anyone worked at any other hospitals (other than current organisation)?
- Compared to other hospitals you have worked at; how do the values of this hospital affect resilience and coping?

4.5.2 Data Collection

Qualitative data were obtained in four focus groups recruited through the Phase 1 data collection. Up to one hour was allocated for each focus group and participants were provided with complimentary light refreshments. The focus groups were conducted by an experienced facilitator (the primary supervisor) and an assistant (the PhD candidate) who took field notes. The field notes taken during the focus groups provided information on non-verbal communication, group reactions, and dynamics. The final sample size, and the point at which data collection ceased, was determined by data saturation (Fusch & Ness, 2015; Guest et al., 2006). Data saturation was achieved when no new coding, no new themes, and no new data were generated from the focus groups (Fusch & Ness, 2015; Guest et al., 2006). All focus groups were recorded and listened to twice prior to transcription, beginning the process of familiarisation and immersion in the data (Burns & Grove, 2011). Once completed, transcripts were checked for accuracy by comparing the transcripts to the original audio recordings.

4.5.3 Data Analysis

Once data saturation was reached and transcription of the focus groups was completed, thematic analysis of the qualitative data collected was undertaken following the six phases of analysis outlined by Braun & Clarke (2006). These phases and the actions undertaken in relation to each are outlined in Table 2. NVivo (QSR-International, 2015) was used to assist in the analysis process.

Table 2

Qualitative analysis process

Phase of Analysis (Braun & Clarke, 2006)	Action
Phase 1: Familiarising yourself with the data	• Present at focus groups field notes taken • Focus groups listened to twice prior to transcription • Completed transcription and read in entirety multiple times
Phase 2: Generating initial codes	• Entire data set coded • Coding completed independently by two researchers
Phase 3: Searching for themes	• Looked for similarities of concepts within codes • Grouped codes together into initial themes • Developed initial thematic map
Phase 4: Reviewing themes	• Compared and contrasted initial themes for similarities • Re-coding • Discussion of themes by researchers • Development of thematic map • Compared themes to transcripts • Quotes found which conveyed themes and subthemes • Member checking
Phase 5: Defining and naming themes	• Essence of each theme identified • Detailed analysis of each theme written • Reflected upon themes against study aims • Scope of each theme determined • Theme names finalised
Phase 6: Producing the report	• Findings written up with supporting evidence of themes within the data

Themes were initially mapped following Braun & Clarke's (2006) phases of analysis. Once the themes were identified the researchers analysed the transcript data for links between the organisational values and aspects of nursing work and the work environment described by participants. The organisation's description of each value and examples of how the value could be demonstrated or upheld (Table 3) were considered when making links between the data and the organisational values.

Table 3

Description of each organisational value and examples of their demonstration (St John of God Healthcare, 2019)

Value	Examples of the value being demonstrated
Hospitality: A welcoming openness, providing spiritual comfort to all	• Participate in creating a friendly work environment • Acknowledge people by smiling and being friendly • Care for the physical environment at work
Compassion: Feeling with others and striving to understand their lives, experiences, and suffering with a willingness to reach out in solidarity	• Recognise, nurture and appreciate others • Provide support to others in their time of need • Show kindness and generosity in all aspects of our role
Respect: Treasuring the unique dignity of every person and recognising the sacredness of all creation	• Take care to use language that does not offend of demean a person's dignity • Acknowledge by our actions that each person has a right to respect • Are aware of colleagues' commitments so that they can manage their time effectively, are able to be punctual and meet deadlines
Justice: A balanced and fair relationship with self, neighbour, all of creation, and with God	• Address issues in a respectful manner, as they arise with the appropriate person • Give positive feedback and accept constructive feedback • Contribute to the workload as a team • Acknowledge that bullying and discriminating behaviour is not acceptable in the workplace
Excellence: Striving for excellence in the services we provide	• Take responsibility to inform and be informed • Encourage caregivers[2] to contribute to decision making • Encourage development opportunities for caregivers • Actively participate in change processes

[2] Caregiver is a term used to describe all employees at St John of God hospitals and sites

To build trustworthiness in the analysis a second researcher independently coded the focus group data and identified initial themes (Nowell et al., 2017; Shenton, 2004). The themes that were identified in the data by these two researchers were discussed with the third and consensus was reached upon the final themes. Exemplar quotes that conveyed the themes and subthemes were identified in the analysis process which were utilised in the findings. Once a comprehensive description of the phenomenon of resilience in nurses employed in a faith-based organisation was drawn from the data, member checking was utilised to ensure the interpretation and description was a true reflection of participant's experiences (Streubert & Carpenter, 2011). Three member checking sessions were offered to provide an opportunity for focus group participants to attend. The sessions were conducted to present the analysis of the complete focus group data and seek feedback on if the interpretation reflected participant's experiences.

With the quantitative data analysis for phase one and the qualitative data analysis for phase two completed the final stage of the study integration could commence (Figure 2). Data from the quantitative and qualitative results presented in Chapter Five were integrated and interpreted in the context of the concept analysis and integrative review. Through the process of integration, it was possible to build a more complete picture of the relationship between organisational values and nurse resilience.

4.6 Integration

The integration process began with a joint display presented in Chapter Five then continues in Chapter 6, where mixed methods results that address the study aim are presented and is finalised in Chapter Seven integrating through narrative (Fetters et al., 2013). The findings

from both phases of the study and the findings from the concept analysis and integrative review were placed into a joint display table to allow for the comparison of results. To assess the fit of integration the findings were examined for confirmation, expansion, and discordance (Fetters et al., 2013; Younas et al., 2020). Confirmation occurs when findings from data sources confirm the results of each other (Fetters et al., 2013). Similarities across the findings from each data source were searched for to identify where confirmation occurred. Expansion occurs when findings from data sources expand insights for example; '…quantitative data may speak to the strength of associations while qualitative data may speak to the nature of those associations' (Fetters et al., 2013, p. 2144). Areas where findings from one data set built on or expanded on those of another data set were determined. Lastly, contrasts were identified to find instances of discordance which occurs when the findings from data sources are inconsistent, contradict or disagree with each other (Fetters et al., 2013). Completing the joint display was key to identifying areas of confirmation, expansion, and discordance in the findings (Younas et al., 2020), which were then elaborated on in the detailed discussion presented in Chapter Seven. Completing the data integration through narrative (discussion) involved weaving quantitative, qualitative, concept analysis, and integrative findings together into themes (Fetters et al., 2013) to give a complete description of the data integration and fit.

4.7 Ethical Considerations

Ethical approval for both study phases was obtained from the study site Human Research Ethics Committee (1182) with reciprocal approval from the enrolling higher degree by research University (HRE2017-0402) (Appendices 2 & 3). The study design was guided by the National Health and Medical Research (2007) guidelines on ethical conduct in human

research. During the first phase of the study in which potential participants were invited to complete a questionnaire, a Participant Information Sheet outlining the nature and purpose of the study was enclosed with each questionnaire distributed (Appendix 4). Consent was inferred by the completion and return of the questionnaire.

Participation was voluntary and questionnaires were returned via sealed envelopes directly to the researchers which ensured participants' responses were only viewed by the researchers. Further non-monetary incentives were not included in the reminders sent to non-responders at two weeks. Data collected from the questionnaires was re-identifiable, with each potential participant allocated a number to allow survey returns to be tracked and reminders issued. Once the collection and analysis of questionnaires was completed the identity link record was destroyed. Although the primary researcher was employed at the study hospital as a research nurse, her position did not hold any authority over other nursing positions recruited to the study. No unequal power relationship existed and potential participants' autonomy was not affected in accordance with section 4.3 of the National Health and Medical Research Council guidelines (2007).

In the second phase of the study participants (recruited from Phase 1) who were considering taking part in the focus groups were provided with a Participant Information Sheet (Appendix 5) that outlined the purpose of the study and the involvement required. Time was given to ask questions and discuss the project with the researcher to ensure participants were fully informed. It was made clear that participation in the study was voluntary and that no adverse effects were expected for individuals who chose not

participate. Prior to the focus groups, written consent was obtained from each Phase 2 participant (Appendix 6).

Only the researchers working on the project had access to the data collected and data were de-identified with the use of participant codes to ensure confidentiality. Any identifying data within the interviews such as names and places were removed or changed as appropriate to protect participant confidentiality in the thesis and reports and publications produced from the study. Whilst it was not anticipated that this project would cause distress, in the event that a participant became distressed as a result of participating in a focus group support, participants were made aware that support and counselling was available through the study hospital employee benefits program.

4.8 Chapter Summary

This chapter presented the methodology, research process and methods used to investigate the impact of organisational values on nurse resilience. This included justification of the methodology selection and the methods used. A mixed methods approach was best suited to the aim and objectives of the study to enable a detailed investigation of the impact of organisational values on nurse resilience. Detailed description of the mixed method design, quantitative and qualitative data collection, data analysis, integration of data sources and ethical considerations were described. The next chapter presents the results obtained from this study.

Chapter 5. Results

5.1 Introduction

The quantitative and qualitative results obtained from the cross-sectional survey and focus groups are presented in this chapter. The quantitative data were used to determine nurse resilience levels, test for associations between resilience scores, subscales, and variables, and partially assess the role the organisational values played in individual resilience. The qualitative phase of the study examined the concept of resilience specific to nurses employed in a value-based organisation and explored how the organisational values affected individual resilience. Structurally, this chapter consists of four main sections with relevant sub-sections. In the first section, the quantitative results from the cross-sectional survey are presented. Then in the second section, the qualitative results from the focus groups are described. The third section begins data integration of the study results with findings from the concept analysis in Chapter Two and the integrative review in Chapter Three, presented in a joint display. The final section provides a summary of the chapter.

5.2 Phase One Quantitative Results

A total of 758 questionnaires were distributed to nurses who met the study inclusion criteria, with a 52% (n=394) response rate. Two questionnaires were returned blank and one with an incomplete CD-RISC; these were excluded from the final analysis. The final sample size of 391 participants was above the minimum of n=255 participants calculated to reflect the true values of the hospital nursing population of N=758 at a 95% confidence level and 5% confidence interval (margin of error) (National Statistical Service, 2017). Following data

entry, a random sample of 20% (n=78) of the questionnaires were audited with no errors found, therefore no further audit was required.

5.2.1 Participant Characteristics and Resilience Levels

Participants were predominately female (n=374, 96%) with an age range of 19-76 years and a mean of 42 years. Most participants were registered nurses (n=321, 82%). The majority of participants reported they were employed on a part time basis (n=236, 62%). The highest nursing qualification held by most participants was a Bachelor of Nursing degree (includes Bachelor of Science Nursing) (n=177, 46%) (Table 4). Participants had a mean of 18 years' experience working as a nurse, with a range of 1-50 years. The sample had a mean of 10 years' experience working as a nurse at the study organisation with a range of 1-40 years. To assess if the study sample was representative, a comparison of data available on the hospital nurse population, Australian nursing population, and study sample is presented in Table 4. The clinical areas respondents were employed in are shown in Table 5.

Table 4

Study sample characteristics, available data on hospital population characteristics, and nationally reported characteristics

	Sample (n=391)	Hospital population (N=758)	Australian population (N=351,592)
Gender	96% (n=374) female 4% (n=17) male	94% (n=712) female 6% (n=46) male	90% female 10% male
Employment	38% (n=146) full time 62% (n= 236) part time	15% (n=116) full time 85% (n=642) part time	- -
Registration	15% (n=58) EN 82% (n=321) RN 3% (n=11) RN/RM *1 with missing data	16% (n=118) EN 82% (n=622) RN 2% (n=18) RN/RM	17% (n=59,429) EN 75% (n=263,209) RN 8% (n=28,954) RN/RM

	Sample (n=391)	Hospital population (N=758)	Australian population (N=351,592)
Highest nursing qualification	46% (n=177) Bachelor of Nursing	-	-
	19% (n=75) Postgraduate Certificate	-	-
	15% (n=60) Diploma of Enrolled Nursing/Hospital Certificate of Enrolled Nursing	-	-
	12% (n=46) Postgraduate Diploma	-	-
	6% (n=24) Hospital Certificate of Registered Nursing	-	-
	2% (n=7) Masters of Nursing		

Note. Statistics reported on the Australian population are those available for registered nurses, enrolled nurses, and dual registered nurse and midwives in the Australian Institute of Health and Welfare (Australian Institute of Health and Welfare, 2016) 'Nursing and midwifery workforce 2015 report'. Only percentages are provided for gender in the report.

Table 5

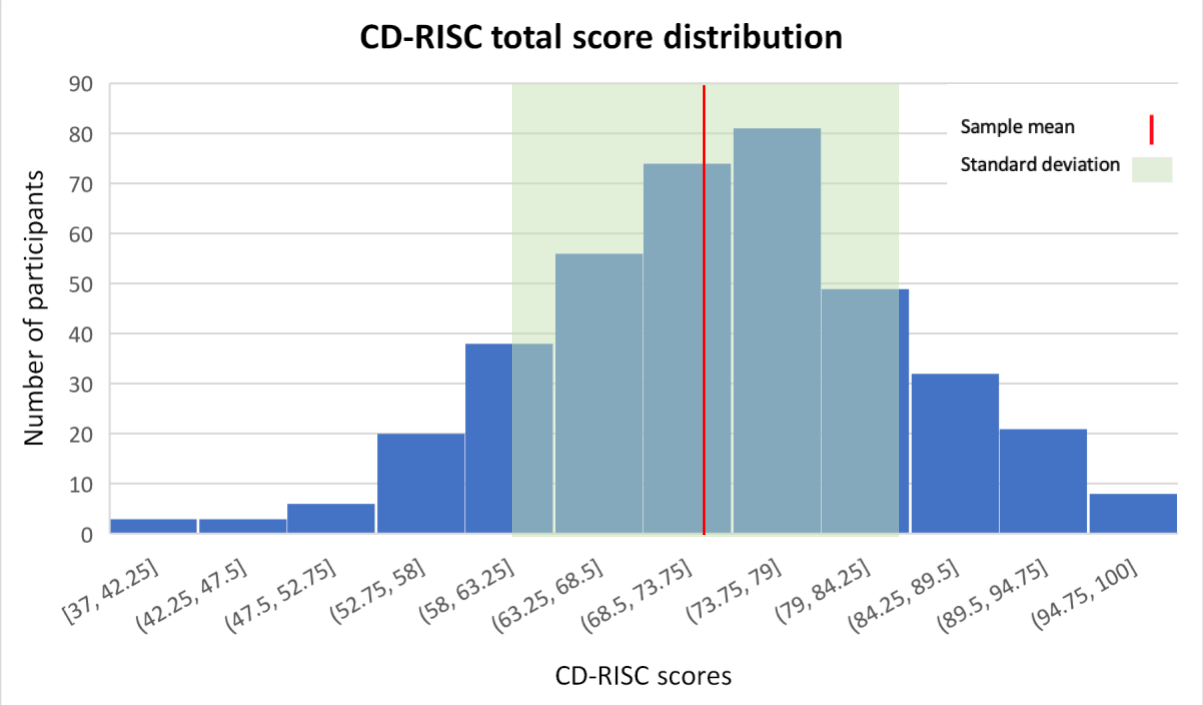
Participant's clinical speciality

Clinical Area	Frequency	Category
Surgical unit	92	Ward
Theatres	84	Theatres
Mixed medical and surgical	35	Ward
Intensive care unit	29	Critical care
Oncology	28	Ward
Day surgery unit	23	Low acuity
Short stay unit	23	Low acuity
Neonatal unit	18	Critical care
Paediatrics	14	Ward
Endoscopy	12	Low acuity
Medical unit	12	Ward
Preadmissions	10	Low acuity
Coronary care unit	5	Critical care
Cardiac intervention unit	5	Critical care
Infection control	1	Low acuity

The mean CD-RISC score for 392 participants was 73.1 (SD, 11.1), with a range of 37-100 (Figure 3). The reliability across CD-RISC subscales in the study sample was assessed (Cronbach's α 0.82).

Figure 3

CD-RISC distribution



5.2.2 Associations with Resilience

Tests of association were performed to assess the relationship between resilience level and age, total years of experience as a nurse, and total years working as a nurse at the study organisation. Prior to applying tests of association, the distribution of all variables were assessed by performing histograms, box plots, and normal probability plots (Appendix 7). Both resilience level and age were normally distributed and Pearson's correlation was used to assess the association between these two variables (Ali & Bhaskar, 2016; Du Prel et al., 2010; Nayak & Hazra, 2011). There was no linear association between resilience level and age r=.0489 p=.34.

Both total years of experience as a nurse and total number of years working at the organisation had skewed distribution, therefore to assess the association of these two variables with resilience level it was necessary to utilise Spearman's rank-order correlation (Ali & Bhaskar, 2016; Du Prel et al., 2010; Nayak & Hazra, 2011). The Spearman's rank order correlation, showed a very weak monotonic relationship between resilience level and total years of experience, which was not statistically significant r_s =.0642 p=.21. There was a very weak monotonic relationship between resilience level and total years working as a nurse at the study organisation, which was not statistically significant r_s =.0321 p=.53.

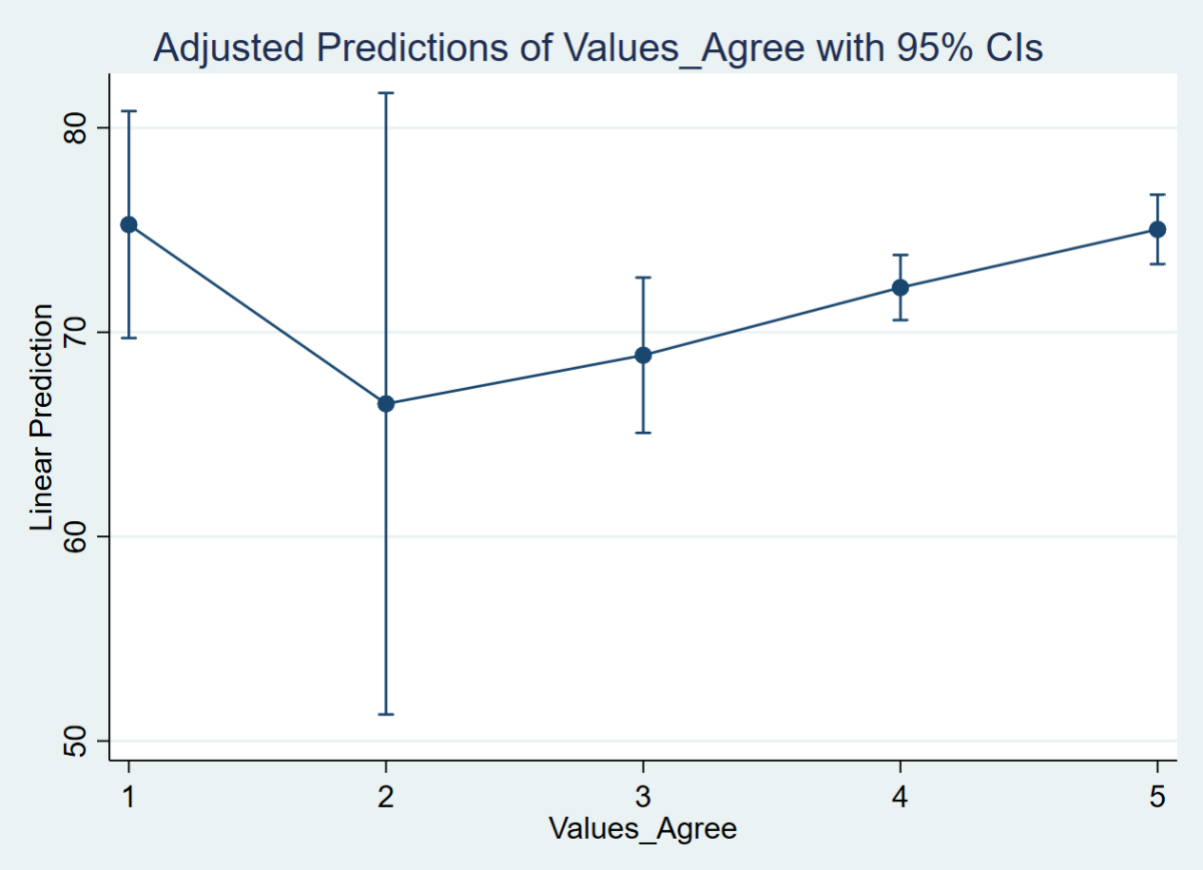
One-way ANOVAs were performed to test if there was a statistically significant difference between groups and resilience level. This included participants grouped into type of registration held, employment status, and highest qualification held. No statistically significant difference was found between group mean based on type of registration $F(2,387)$ =.51, p=.60, nor between employment status and mean resilience level, $F(1,380)$ = .34, p=.56. There was a statistically significant difference in the resilience levels between groups based on highest qualification held $F(5,383)$ = 2.4, p=.04. Compared to hospital trained nurses, the mean resilience score was estimated to be 7.2 points higher in bachelor degree qualified nurses. Scores from the CD-RISC were categorised to either below the sample mean (<73) or equal to or above the sample mean ($\geq$73). Chi-Square was used to test for any statistically significant difference between clinical areas categorised as ward, critical care, theatres, or low acuity areas. No significant difference was found in resilience levels based on clinical area, X^2 (3, N=391) =.10, p.99.

Participants were asked to identify the five core values of the study hospital; 84% (n=328) recognised all five, 13% (n=50) knew four of the organisational values, 3% (n=11) identified three of the organisational values and two participants did not respond to this question. Using a Likert scale participants were asked to indicate their level of agreement with two statements: 'The hospital values are very important' and 'I agree with the hospital values'. High levels of value congruence were evident, with 87% (n=342) of participants either strongly agreeing or agreeing with the organisational values. A small number of participants, 4% (n=15), strongly disagreed with both statements about the importance of the values and agreement with the values. Chi-Square was used to test for any statistically significant difference between CD-RISC score (categorised as < sample mean or $\geq$ sample mean) and number of organisational values correctly identified (categorised to all five correct, four correct and three correct). No significant difference was found between resilience score and number of values correctly identified X^2 (2, N=389) =1.19, p.55.

Level of agreement with the organisational values was significantly associated with resilience level (overall F[4, 386] = 3.08, p=0.016). The quadratic contrast, in particular, was significantly associated with resilience (quadratic term F[1,386] = 5.29, p=0.022). Participants at extremes on the Likert scale (strongly agree and strongly disagree with the organisational values) had higher resilience scores (Figure 4).

Figure 4

Estimated cell means for level of agreement with organisational values

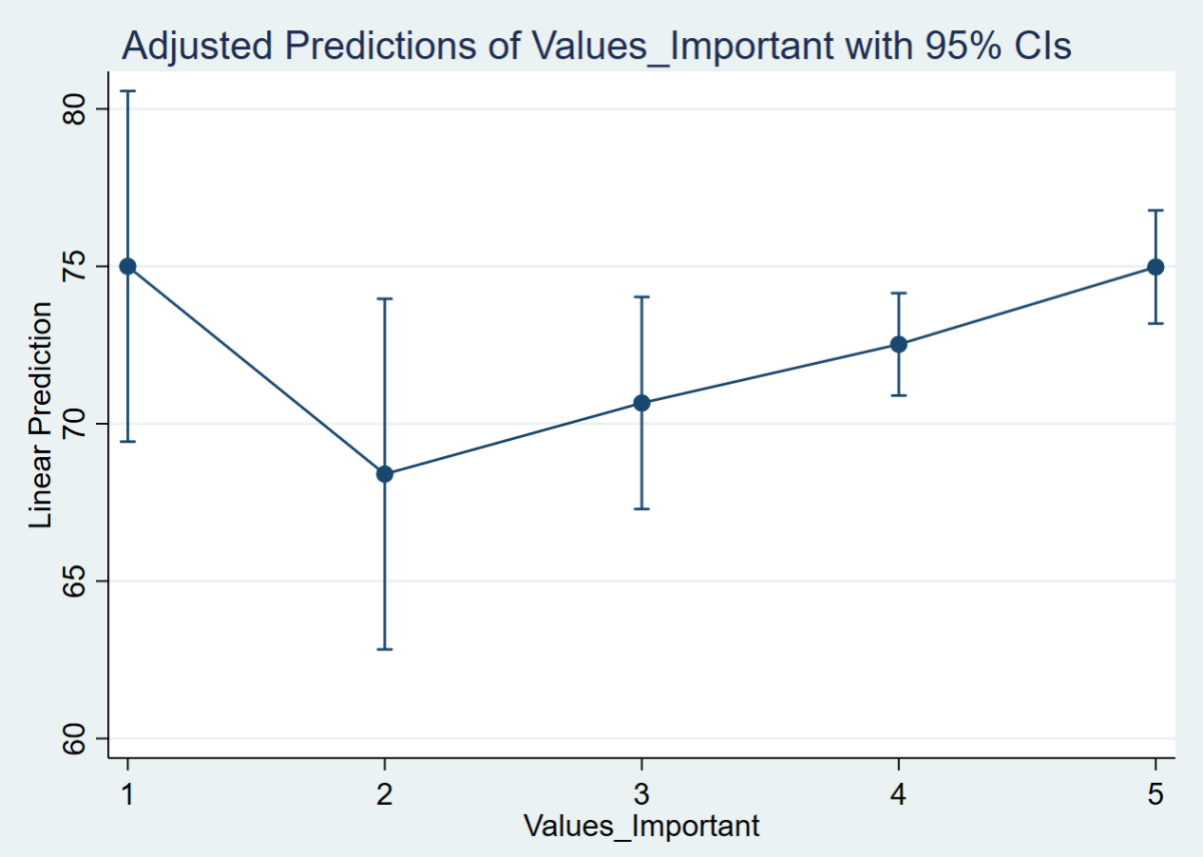


Note. 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

Similarly, there was a significant association between the extent to which participants agreed the organisational values were important and mean resilience level (overall $F[4, 386] = 2.48$, $p=0.043$). The quadratic contrast, in particular, was significantly associated with resilience (quadratic term $F[1, 386] = 5.62$, $p=0.018$.). Participants at extremes on the Likert scale (strongly agree and strongly disagree that the hospital values are very important) had higher resilience scores (Figure 5).

Figure 5

Estimated cell means for importance of organisational values



Note. 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

5.2.4 Subscale Analyses

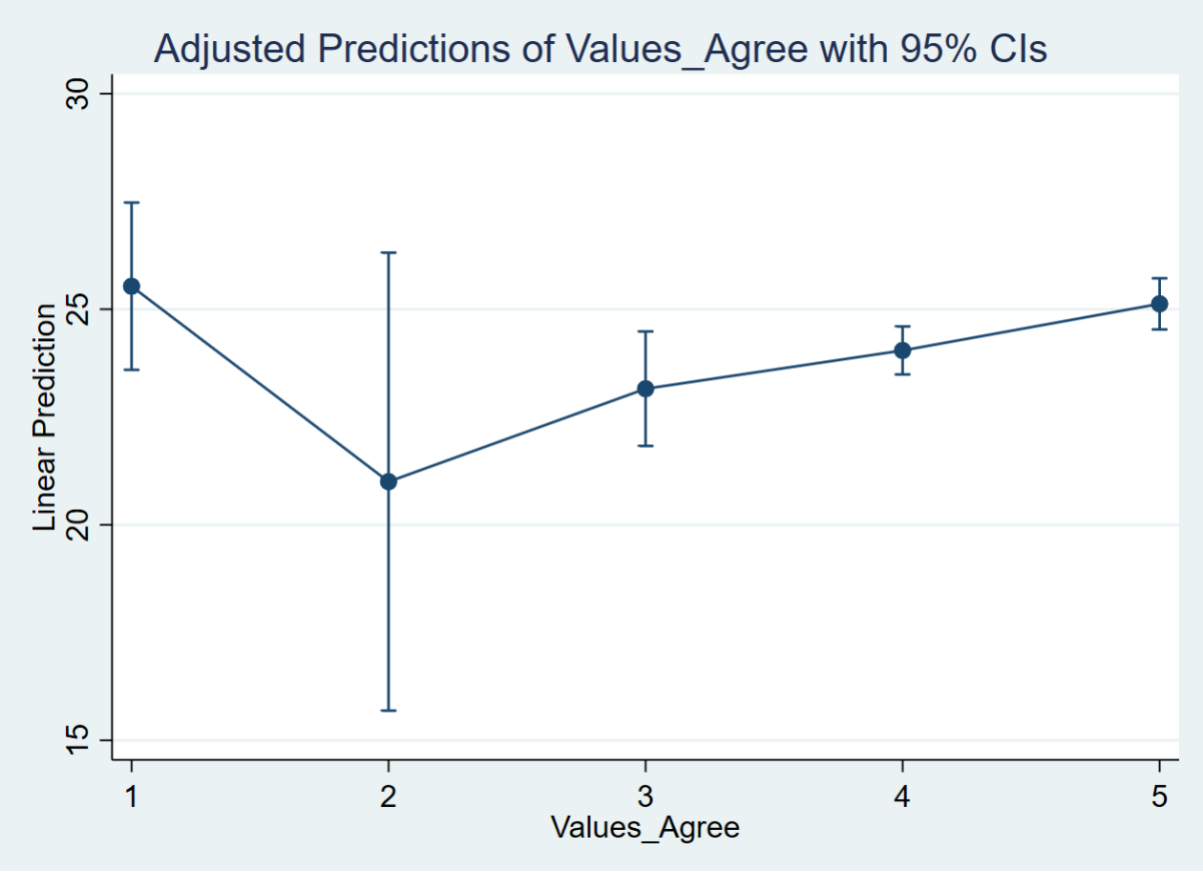
Three variables with statistically significant results based on total CD-RISC score - highest qualification, level of agreement with the organisational values, and importance of values - were further analysed against the five subscales of the CD-RISC (Table 1 Chapter 4). One-way ANOVAs were performed to test if there was a statistically significant difference between groups and CD-RISC subscale scores. No statistically significant differences were found between groups based on highest educational level held and Factor 2 (related to instincts, negative affect tolerance, and effects of stress), Factor 3 (related to acceptance of change and relationships), Factor 4 (control) or Factor 5 (spiritual influences) subscale means. There was a statistically significant difference in Factor 1 (related to personal

competence, high standards, and tenacity) subscale means between groups based on highest qualification held $F(5,383)=2.19$, $p=0.05$. Compared to hospital trained nurses the mean Factor 1 score was estimated to be 3.0 points higher in postgraduate diploma qualified nurses.

No statistically significant differences were found between groups resilience levels based on level of agreement with the organisational values and Factor 2 $F(4, 386)= 1.52$, $p=.20$, Factor 3 $F(4, 386)= 1.68$, $p=.15$ and Factor 4 $F(4, 386)= 0.61$, $p=.66$ subscale means. Level of agreement with the values was significantly associated with Factor 1 subscale means (overall $F[4, 386] = 3.39$, $p=0.01$). The quadratic contrast, in particular, was significantly associated with Factor 1 (quadratic term $F[1, 386] =7.37$, $p=0.007$), where participants at extremes on the Likert scale (strongly agree and strongly disagree) had higher Factor 1 subscale scores (Figure 6).

Figure 6

Estimated cell means for level of agreement with organisational values based on Factor 1 subscale

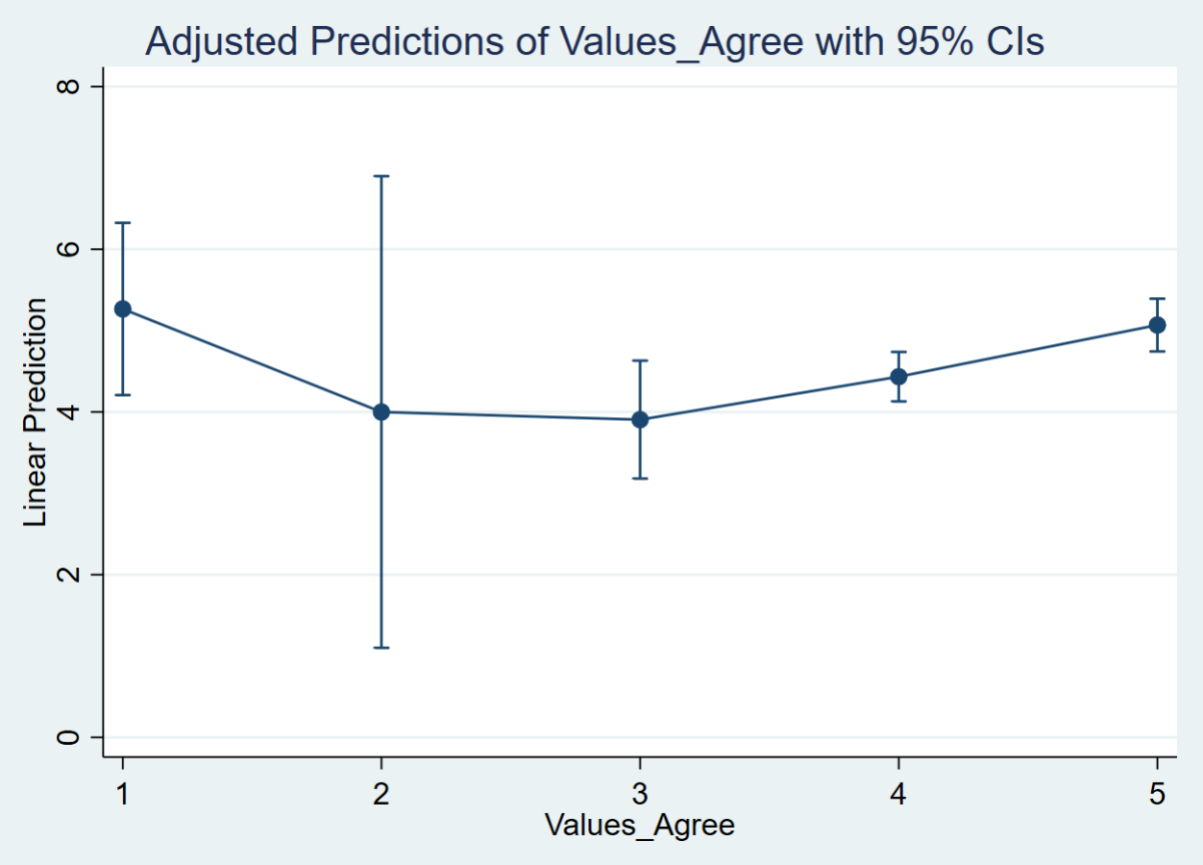


Note. 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

Similarly, level of agreement with the values was significantly associated with Factor 5 subscale means (overall $F[4, 386] = 3.47$, $p=0.008$). The quadratic contrast, in particular, was significantly associated with Factor 5 (quadratic term $F[1, 386] =4.88$, $p=0.03$), participants at extremes on the Likert scale (strongly agree and strongly disagree) had higher Factor 5 subscale scores (Figure 7).

Figure 7

Estimated cell means for level of agreement with organisational values based on Factor 5 subscale

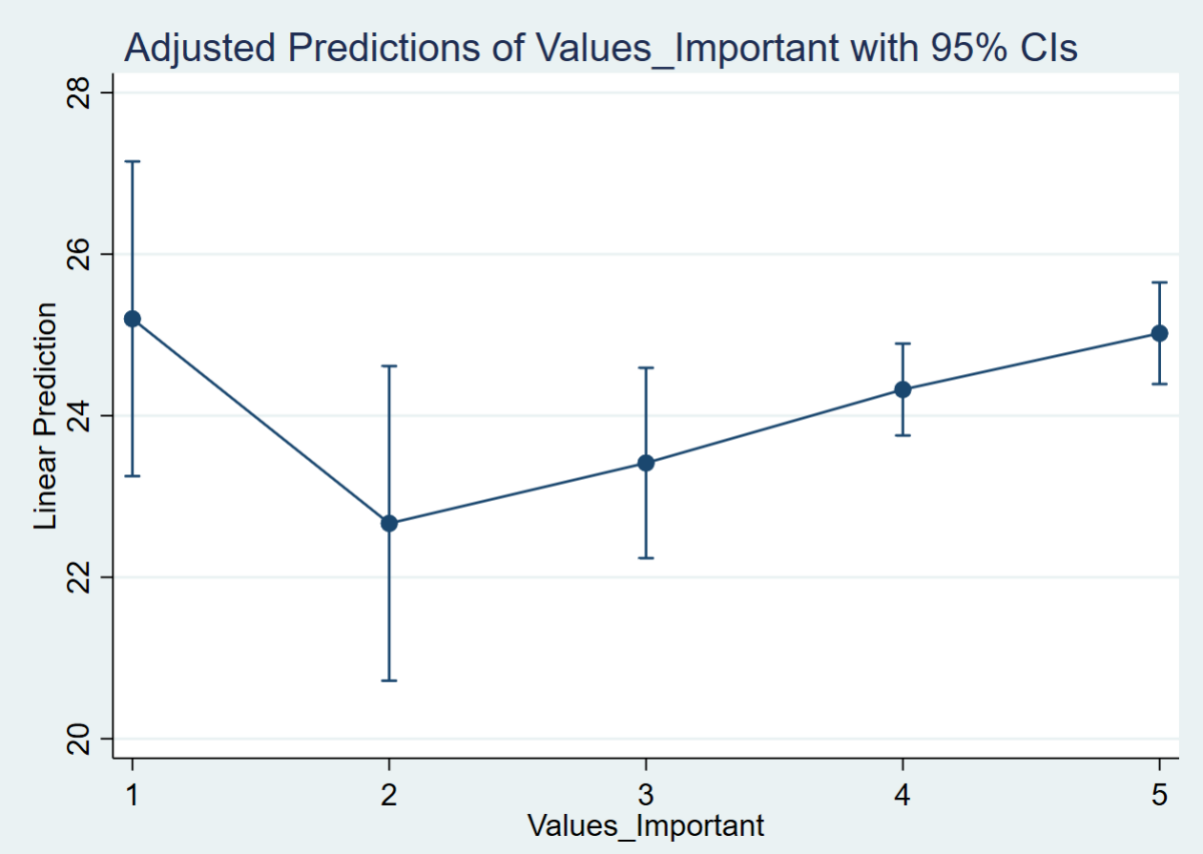


Note. 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

No statistically significant differences were found between groups based on the extent to which agreed the organisational values were important and Factor 2 $F(4, 386)= 0.97$, $p=.43$, Factor 3 $F(4, 386)= 1.52$, $p=.20$ and Factor 4 $F(4, 386)= 1.51$, $p=.20$ subscale means. The extent to which participants agreed the organisational values were important was significantly associated with Factor 1 subscale means (overall $F[4, 386] =2.54$, $p=0.04$). The quadratic contrast, in particular was significantly associated with Factor 1 (quadratic term $F[1, 386] =6.41$, $p=0.01$), where participants at extremes on the Likert scale (strongly agree and strongly disagree) had higher Factor 1 subscale scores (Figure 8).

Figure 8

Estimated cell means for importance of organisational values based on Factor 1 subscale

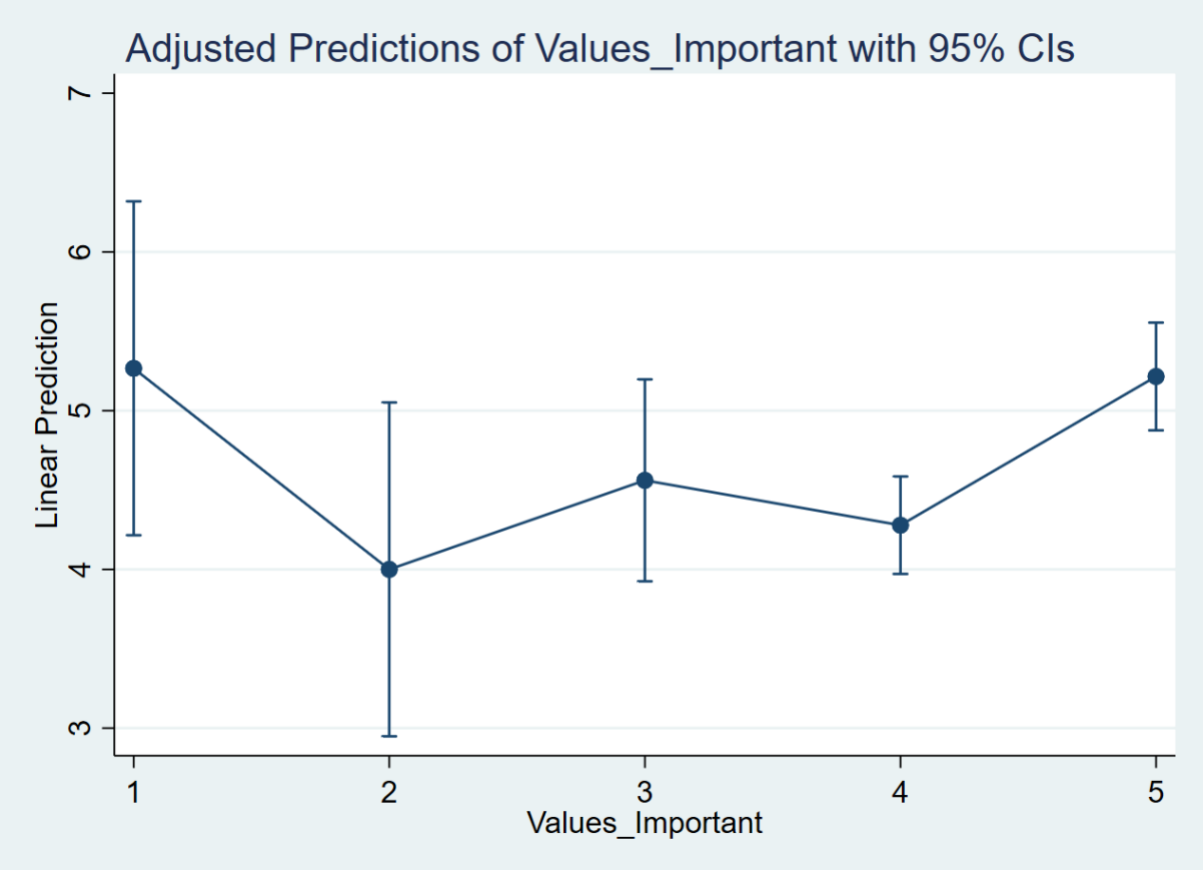


Note. 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

Similarly, the extent to which participants agreed the organisational values were important was significantly associated with Factor 5 subscale means (overall $F[4, 386] = 4.80$, $p = 0.0009$). The quadratic contrast, in particular, was significantly associated with Factor 5 (quadratic term $F[1, 386] = 6.37$, $p = 0.01$), where participants at extremes on the Likert scale (strongly agree and strongly disagree) had higher Factor 5 subscale scores (Figure 9).

Figure 9

Estimated cell means for importance of organisational values based on Factor 5 subscale



Note. 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

5.2.5 Summary of Quantitative Results

Based on the quantitative findings, no association was found for participant's resilience levels based on age, years of experience as a nurse, or years of experience working at the study hospital. Similarly, there was no significant difference in resilience levels based on type of employment held, registration, or clinical area. A significant difference was found based on highest qualification held, with participants with a bachelor's degree having higher resilience levels compared to participants who had hospital training as their highest level of qualification. The majority of participants knew the organisational values and participants at extremes on the Likert scales (strongly agree and strongly disagree) were significantly more

likely to have higher resilience levels. Subscale analysis found a significant difference based on highest qualification held and Factor 1 subscale scores (related to personal competence, high standards, and tenacity) with postgraduate diploma qualified nurses having higher Factor 1 scores compared to participants who had hospital training as their highest level of qualification.

Level of agreement with the organisational values was significantly associated with Factor 1 and Factor 2 (related to instincts, negative affect tolerance, and effects of stress) subscales. Participants at extremes on the Likert scales (strongly agree and strongly disagree) were significantly more likely to have higher subscale scores. Similarly, the extent to which participants agreed the organisational values were important were significantly associated Factor 1 and Factor 2 subscales. Participants at extremes on the Likert scales (strongly agree and strongly disagree) were significantly more likely to have higher subscale scores.

5.3 Phase Two Qualitative Results

In keeping with the concurrent, equal status design of the study (QUAN QUAL), qualitative data were collected to further investigate resilience from the perspective of nurses employed in a value-based organisation. Data from the focus group interviews and field notes contribute to the final results presented. The questions outlined in the previous chapter guided the focus group discussions. Despite the provision to do so, no changes or additions were made to the questions following analysis of the quantitative data.

5.3.1 Sample

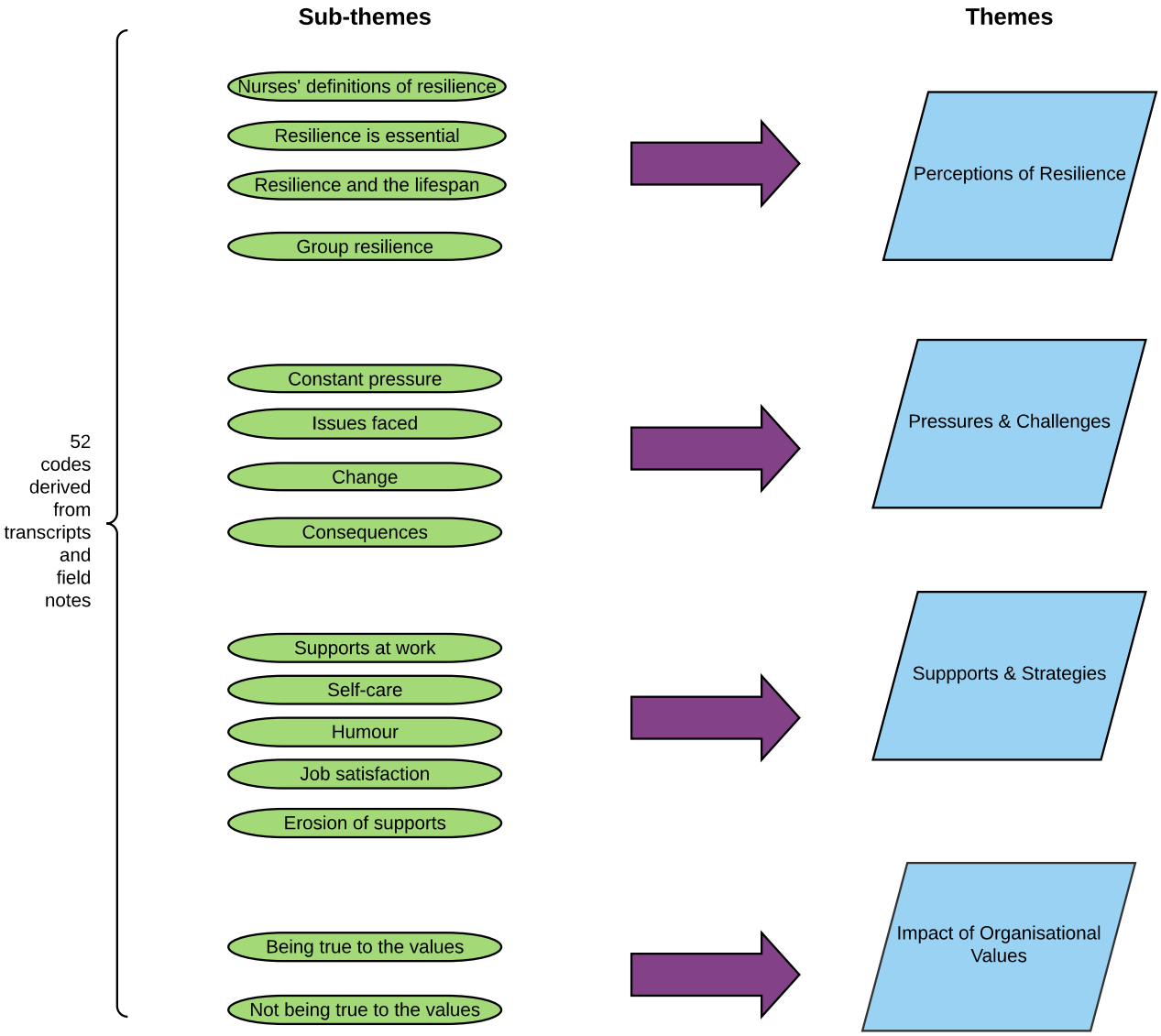
Four focus groups were conducted between the 26th February 2018 and 21st March 2018. Initially, 89 respondents from the cross-sectional survey indicated an interest in participating in the focus groups. Twenty-five nurses participated with a reported age range of 29-60 years (where this information was shared). The smallest focus group had five participants and the largest group consisted of eight participants. The duration of the focus groups ranged between 40 minutes and 60 minutes. The nurses collectively had a vast range of clinical experience, working in specialities including orthopaedics, preadmissions, colorectal, theatres, gynaecology, recovery, neonatal intensive care, oncology, cardiovascular intervention, adult intensive care, cardiothoracics, midwifery, minor procedures, paediatrics, emergency and day surgery. The sample consisted of early career nurses through to nurses nearing retirement, with a range of 4-34 years of experience.

5.3.2 Findings

Following Braun & Clarke's (2006) thematic analysis process fifty-two codes contributed to the identification of several themes which described participants' views and experiences related to resilience (Figure 10). The coded data and sub-themes were condensed into four main themes (Appendix 8): 1. perceptions of resilience, 2. pressures and challenges, 3. supports and strategies, and 4. impact of organisational values. All participants who attended the member checking sessions (n=7) concurred with the interpretation of the data and no revision of the analysis was required. Exemplar quotes are provided to illustrate the themes and sub-themes identified. Links to the organisational values identified in the data analysis process by the researchers are highlighted in bold.

Figure 10

Themes and sub-themes from focus group data



Perceptions of Resilience

During the focus groups, participants discussed resilience in a variety of ways, from the importance of nurse resilience, what they considered resilience to be, the development of resilience, and the notion of group resilience.

Resilience is essential

There was universal agreement amongst the participants that resilience was essential and that a lack of resilience could place nurses at risk. This risk was described as "Huge, if you don't have those coping mechanisms or strategies in place I think you can really go under and quite quickly" (Participant 16).

Nurses' definitions of resilience

The participants defined resilience in a variety of ways including the ability to cope, bouncing back, survival, flexibility, optimism, and going with the flow. The ability to endure and manage adversity and stressors was evident in the participants' definitions however, resilience did not mean being unaffected but being able to readjust and withstand. As one participant described: "I would say resilience is about sort of not falling over but you can bend and sway in the breeze as long as you don't actually go over" (Participant 20).

Resilience and the lifespan

Participants explored resilience through life, initiating discussion around the development of individual resilience. Participants were keenly aware of how resilience developed across life and that both personal and professional experiences contributed to the level of resilience an individual possesses. "… because all that I'd been through I'd developed a resilience to life. That was, you know, couldn't have been experienced that couldn't have come from any other, couldn't have come any other way" (Participant 7).

Group resilience

The possibility of group resilience in the workplace was also identified with participants referring to being part of a team and standing together as a source of resilience:

> "…I think that's one of the biggest things that builds resilience is knowing you're not standing out there on your own (agreement from group). Knowing you're all in exactly the same position, you're standing as a group going to go out there en masse and take it on (others agree)" (Participant 18).

A broad understanding of resilience was demonstrated during the focus groups. Participants provided detailed definitions of what they considered resilience to be, how resilience developed across life, and how group resilience aided nursing teams. All participants agreed that resilience was an essential characteristic for nurses to possess and was needed to cope with the pressures and challenges of nursing.

Pressures and Challenges

The pressures and challenges participants faced featured strongly during the focus groups. The healthcare environment they worked in was pressured due to a wide range of challenges and stresses participants described facing on a daily basis.

Constant pressure

Participants frequently alluded to the pressured nature of their clinical work environments and a continuous struggle to deliver care, which could affect resilience. Participants described having to try to address issues and shortcomings preventing them from delivering care effectively relating to the value of **excellence**; "It's unnecessarily exhausting because

you're constantly just putting band-aids on here, there, everywhere just hold it, yeah" (Participant 17).

Some participants also alluded to the fact they felt the amount of pressure they were under and the challenges they faced were not appreciated by management indicating a lack of **compassion**:

> "…the work gets done it's just expected (others agreeing). What's not understood is you're absolutely on the cusp… and just one thing has to go wrong and it completely tips the boat (agreement from the group) and then it's very hard. That moves onto the next shift who are then already, you know, you're pushed to the threshold for that shift" (Participant 3).

<u>Issues faced</u>

Contributing to the pressure participants faced were a plethora of issues including reduced resources, workload, the unpredictable nature of the work, lack of support, lack of communication, difficulties with medical staff and management, insecurity in the workplace, patient acuity, and feeling alone at work. One participant recounted the issues she had faced on her shift the previous day:

> "Well I worked last night… and we had no tramadol. We ran out, there was an empty box of tramadol in the thing, no tramadol, we ran out of Panadol, we ran out of pantoprazole, we had no IMCs, we had, there was something else we ran out of and X had to go and raid X ward get the things unlocked to get. And it's like why is this so hard? Fluids, nobody's bothered to do more fluids, does this patient need more fluids? (All join in agreeing and discussing how difficult that is)" (Participant 14).

Lack of support from managers was seen as a factor that could negatively affect nurses' resilience and links to the values of **compassion** and **respect**:

> "Not feeling supported if you go to say your manager with something that's happened or that you're not happy with and there's no support or nothing changes… it just crushes you that little bit and all those add up over time, can affect how resilient you are or how well you cope with stressful situations" (Participant 8).

Some participants described negative interactions with medical staff that could create hostile working environments and indicated a lack of **respect**:

> "…they see the fact that their patient hasn't performed but it becomes a nursing, a caregiver[3], issue and sometimes their attitudes and the way they present their grievance can erode you hugely (others agree). Put you into tears (others agree)" (Participant 9).

> "Yeah, yeah you get girls crying at the table when they're scrubbed. It's not very nice" (Participant 7).

Alongside the issues faced in their usual area of work some participants described the dread they experienced when being reallocated to work in different areas of the hospital outside of their usual speciality; "…it felt like having my legs and arms chopped off. You feel so out of your depth" (Participant 20).

[3] Caregiver is a term used to describe all employees at St John of God hospitals and sites

Change

In addition to issues that had long been experienced, participants were also acutely aware of recent organisational changes and how this impacted them and their patients. Participants identified that the acuity and complexity of the patients had increased and resources had reduced, threatening **excellence** in care and their resilience:

> "And no time to do it because you're expected now to do like this much work, say a metres worth of work in ten centimetres. Like that's all the resources you get given. So, more work, more patients… more complexity of work. So, it's higher risk patients certainly that we put through and that you guys will see up on ICU. But you don't have any more staffing. In fact, you have less staffing than what you had five years ago. (Others agreeing)" (Participant 17).

There was a sense that the very nature of nursing had changed, with a move away from holistic hands on care and a focus on paperwork, which was a source of dissatisfaction; "It was hands on nursing ten years ago. It's not hands on anymore. It's paperwork nursing now and that's the problem (agreement from others). It's a big problem here" (Participant 5).

Participants also felt that the organisation they worked for had changed and this had resulted in the prioritisation of business and finances over patient care:

> "I just think that is where the, it has changed and I think because of that business model that they want to change, they want to make money and want to be seen as a corporate business as opposed to a service. Then everything is focused in saving money, making money and following a business model as opposed to a health service model" (Participant 19).

Consequences

The level of pressure and the challenges participants described in their work had a wide range of potential consequences, undermining nurse resilience and the value of **justice,** as participants struggled to maintain fair and balanced relationships. A number of participants were acutely aware of the psychological consequences the pressures and challenges they faced at work had:

> "Every day when we go home I just feel completely mentally exhausted (others agree). You are almost unable to function when you go home because mentally you are so done you just can't think of anything else. It takes me hours to unwind at night" (Participant 4).

While another participant suggested that even though they didn't directly attribute it to work, many nurses suffer physiological effects as a result of their work:

> "…we probably just think oh yeah that's that extra cup of coffee that I've had that my heart's racing… or the high blood pressure, well that's just an age thing… you know getting old. And the bad back, well that's just a nursing thing. But all those muscles and aches and pains can be signs of not coping and low resilience..." (Participant 19).

Other participants described seeing the effects of stress in others:

> "I think we could all probably name someone that we've seen come into the job even as a grad or something like that, realise that it's not for them because of the levels of stress that are often involved. …I've certainly seen people who have come in, starting off full time, dropping back their hours, dropping back their hours and

> then just not coming back …the same way I've seen people have worked for years and with various changes and things like that have realised that that's not the path of nursing they want to go down anymore and they change streams of nursing or yeah, get out of nursing all together (others nodding in agreement)" (Participant 10).

A number of participants were keenly aware that the pressures and challenges they experienced at work had an impact on their families, in particular finding it hard to engage with family after a stressful day at work; "… I go home and my daughter says why aren't you talking mum? It's because I've been talking all day… and I just don't want to talk. And she's only 16 so she's noticed that…" (Participant 1). Another participant described; "The hardest thing is when you've got a family who are eager-eyed when you get home and you're… I've got nothing. I've gotta 'pull the cat out of the bag'" (Participant 18). Participants described a working environment where they felt they were under constant pressure, faced daily issues, and had also experienced significant changes. There was recognition that the stresses of work had the potential to impact nurses' psychological and physical well-being and personal relationships.

Supports and Strategies

Despite the numerous pressures and challenges, the participants reported a variety of strategies and supports that enabled them to positively adapt and sustain their resilience.

<u>Supports at work</u>

There were many supports and strategies participants drew upon in work to manage the

stresses of work. When participants described supportive managers who provided good leadership and demonstrated **compassion** this helped sustain resilience:

> "You can be on a ward full of nurses you know on a really busy day and you are alone. It's good to have your managers you know there… at least checking in, are you ok? (agreement from others). Can I help you? That kind of gets me through" (Participant 6).

The potential for managers to positively influence nurses was recognised, with a clear distinction between simply managing and providing real leadership:

> "…they were not only managing us they were also leading us. They, they actually were leaders and you were actually learning something from them and you were more empowered that, you know, that you were a good nurse, you're doing a good job" (Participant 4).

Good teamwork was a vital source of support that got participants through difficult shifts and sustained resilience, reflecting the values of **hospitality, compassion, and respect**:

> "…we've got such a good team we all get on so well (others agree). We say, you know, it's going to be a s*&# day but we're just going to stick together and we will get through it and we will talk about it along the way as well. So, I think that's what gets us all through" (Participant 25).

Role models were also considered an important support in the workplace, particularly for early career nurses; "…when you start practising nursing, you see nurses that you want to be like and nurses that you don't want to be like" (Participant 6).

Participants were aware of sources of formal support at the organisation including employee assistance programs and pastoral care, and some participants reported utilising these:

> "…we had a patient die on the table, an elderly patient, who had a DNR who we weren't allowed to resuscitate them. They had to stay there, of course, until the police came in. It's not a problem that's just the procedure, and we as staff got to have a chat to the pastoral care team…" (Participant 7).

Debriefing and reflection were important strategies used, with participants describing how this helped to process difficult events and learn from them; "I think personal reflection and debriefs (others agree) are very important, with colleagues or doctors, if you don't understand what happened or how it happened and yeah, to ask questions and talk about it" (Participant 11).

As well as tangible supports and strategies, participants described how their experience enabled them to manage challenges and stresses at work; "…the longer you're a nurse the more resilience you have, if you stay in nursing, because of the experiences you get along the way (others agree)" (Participant 8).

Some participants described how it was important to remain optimistic, particularly when they had a challenging day at work. Maintaining a positive outlook enabled them to return to work:

> "I still have to leave work and think reasonably positive even if it was really, really hard. So, I can wake up in the morning (agreement from another participant) and

think oh yeah, I'm going to work great. Not oh hell why am I going there again?" (Participant 4).

Self-care

Participants reported engaging in a variety of self-care activities that enabled them to manage the pressures and stresses of work including exercise, reflection, socialising, rest, relaxation and mentally preparing for work. There was an awareness of the need to be in tune with stress levels and knowing when action should be taken to address these; "… I think a lot of that recognition of it as well when you realise this is a trigger for my stress and this is what I need to do…" (Participant 10).

Some participants described the need to take a step back for a minute during pressured and stressful times to calm and collect themselves for their wellbeing and in order to continue to work effectively:

> "I stand back and I literally breathe just for a couple of minutes it's, I have to do that and you know it's and that's taken me a long time to realise that if I don't do it no-one's looking after me" (Participant 17).

The importance of general self-care was also recognised as being crucial to sustaining resilience; "…you have to look after yourself. Get enough sleep, don't get really tired, make sure you eat reasonably, you know, properly..." (Participant 7).

There was also a recognition that there was only so much a person can take on and knowing your limits was an important protective mechanism and form of self-care; "…also realising

your limitations I think that's also a form of resilience, you know (agreement from others). Yeah, you wouldn't be a nurse if you didn't have that ability" (Participant 10).

Humour

Humour featured strongly during the interactions in the focus group sessions, and was frequently used when discussing difficult or stressful issues. This use of humour by participants was noted by both the facilitator and assistant present at the focus groups. Participants also described how they used humour to manage stresses and tensions at work:

> "Yeah well we've got personalities on the ward so we always, we make sure we laugh and you know there's someone that comes on and they're like the Eeyore of the group (others laugh) and it's just hilarious and you know, oh god not another day and you just know and it takes the tension off and you just laugh and you just have to" (Participant 24).

Participants also spoke about the use of black humour or inappropriate humour as a coping mechanism that allowed nurses to remain positive despite the stresses they faced; "You have to laugh otherwise you'd just go completely mental" (Participant 17).

Job satisfaction

Ultimately, what meant the most to participants was delivering good patient care, which in turn provided them with job satisfaction; "…you know a patient at the end of the day remembers your name and says 'thanks now I've got everything' and I think yep I've done my job" (Participant 1). One participant described how the patients she cared for were the reason for her continuing in nursing:

> "The only thing that keeps me here is, it's not the money and I work part time now because the stresses just got to me, but what really keeps me here is my patients. They're amazing (laughs) the people who come. They're the ones that keep me here and I still feel privileged being in a position where I can help them or do stuff for them (agreement from others)" (Participant 12).

Erosion of supports

Although participants identified many supports and strategies that bolstered their resilience and enabled them to manage the stresses of their work, these were seen as being under threat. Loss of nursing hours and education was seen to undermine the value of **respect** for the nursing role and nurses as individuals, with reduced resources affecting the extent to which nurses could strive for **excellence** in the delivery of care. Participants described supports being eroded through reductions in nursing hours, loss of education time, loss of the staff development nurse role, and increasing workloads:

> "And my point about all that, that's the sad thing. They know that you're there because we need that job satisfaction. You know that's important because that drives you on the next day to go back and do it again. Yet they're taking it away. But they're not just taking it away, they're making it so much worse because they're dropping the nursing hours and we're distraught… (others talk and agree)" (Participant 18).

These changes, reduction in nursing hours, loss of education, and the loss of the staff development nurse role, resulted in participants describing a breakdown of the team dynamic in their clinical area with the potential to compromise resilience and the values of

compassion, **respect**, and **excellence**; 'We don't have proper handovers anymore so we're not put together in a group to talk about things, it's just like you go there, you go there, you go there, you've kind of lost your cohesion as a team (others agree)' (Participant 15). Breakdown of teams could reduce opportunities to practice **compassion**, with little time to come together or reach out in solidarity.

Participants identified a wide range of supports and strategies that sustained their resilience and enabled them to manage the pressures and stresses of their work. These supports and strategies were vitally important - from support at work, using humour to reduce tension, actively engaging in self-care and having a sense of job satisfaction that drove them to continue in their work. Participants felt that some sources of support had been eroded away by changes at the organisation making it harder to manage the challenges at work.

Impact of Organisational Values

Direct questions about the role organisational values could play in nurses' individual resilience led to interesting discussions during the focus groups. This revealed the potential for both positive and negative influences on resilience, depending on whether nurses felt the organisation was being true to the values. The 'organisation' in participants' descriptions, was reflective of immediate ward/unit management, facility level management at the study hospital, as well as group level management[4].

[4] St John of God operates hospitals across three states in Australia, group management is the term used to describe the highest tier of management in the organisation which informs the overall strategic direction.

Being true to the values

The values were considered to have the potential to have a positive impact on nurses and their resilience levels when lived. Participants recalled feeling united, supported, having a sense of community, and that the organisation was a good place to work when they felt the organisation was being true to the values:

> "I think that the core values when I first started working in this organisation made me feel like I was really supported in what I was doing, in my decision making, whatever I was doing within the team. That made you feel automatically stronger, more confident… as a nurse and whatever you were doing, and you sort of built on that throughout the years" (Participant 17).

Some participants felt that the distinct values the organisation held differed from other organisations they had worked at:

> "I think when I first started here I liked that (study site) had values that were very clear and were very defined (others agree) because at X as I just said I don't think we were ever told that X had any values. It was just… come and get a job. So, I quite liked that there were those values that we had to strive towards. It was like a goal at the end of each shift… that we tried to meet, hold up to those values" (Participant 2).

The potential for the values to help manage issues with colleagues was also raised. One participant described how she found this useful in addressing inappropriate behaviour from surgeons; "I think they are pulled up by the fact that the hospital… is a Catholic hospital and

I sometimes remind them that… you're saying these things and it's a Catholic hospital…" (Participant 7).

Not being true to the values

There was widespread feeling that the organisation was not currently living up to its values. The perception that the hospital was failing to live up to the values led to participants feeling undervalued; "It makes you kind of change how you feel about the hospital if they don't respect you or have any compassion for what you're going through when you're working on the ward…" (Participant 25).

Some participants reported the values were upheld in their individual wards or departments but felt there was a failure by management on an organisational level to uphold the values:

> "Those values have to come from above, from the very top of the tree and filter all the way down and if we don't feel like we're being treated with compassion or excellence or respect then, you know, it's not going to follow through to the patients (others agree)" (Participant 2).

The values not "coming from above" was attributed to a conflict between the values and the business approach taken by management which led to actions and changes participants felt contradicted or undermined the values; "… at CEO level, you know, the highest level I think it's more budget orientated than thinking about the values" (Participant 6).

This led to feelings of disillusionment with participants being presented with values that they felt their employer was not abiding with; “It’s a sort of disenchantment I think, you know, when you think yeah they are there but we’re not actually living it” (Participant 16). Having values and not upholding them was seen as being damaging, resulting in a decrease in staff morale and resilience; “I don’t know I guess maybe the, the hospital’s values might actually be working against the hospital now because we are pressured, it is pressured all the time and we’re thinking we’re not feeling it you know (others agree)” (Participant 23).

5.3.3 Summary of Qualitative Results

Through the process of thematic analysis four main themes were identified in the qualitative data; perceptions of resilience, pressures and challenges, supports and strategies, impact of organisational values. The analysis revealed the complexity of how organisational values can affect resilience, which was not explicitly evident in the quantitative data. *Perceptions of resilience* included the importance of nurse resilience, what participants considered resilience to be, the development of resilience, and the notion of group resilience. A challenging work environment was described in the theme *pressures and challenges* with links to the organisation’s values identified in the thematic analysis process. Participants described *supports and strategies* which enabled them to positively adapt and sustain their resilience in the face of adversity in the workplace. The extent to which participants felt the values were upheld determined the *impact of the organisational values* on nurse resilience.

5.4 Data Integration

The integration process began with a joint display to assist in identifying areas of confirmation, expansion, and discordance between the data sources. In Table 6 findings from the concept analysis presented in Chapter Two and integrative review presented in Chapter Three are displayed reflecting the chronology of the study objectives, alongside results from the quantitative and qualitative data reported in the previous two sections in this chapter. Key related findings from each data source, where applicable, are summarised in the joint display table and colour coding is used to visually highlight confirmation (in white), discordance (in orange), or expansion (in blue) across the data sources.

Table 6

Joint display integration of data sources

Study Objective	Concept Analysis / Literature	Quantitative Data	Qualitative Data
1 working definition & 4 nurses' concept of resilience	A wide range of definitions of resilience presented	Not investigated	A wide range of definitions of resilience described
1	Six key attributes identified in concept analysis	Not investigated	All six key attributes featured in the focus groups
1, 2, evaluate research, & 3 measure resilience and test associations	Self-efficacy is a key attribute of resilience. Higher education level = higher resilience.	Bachelor degree nurses had significantly higher resilience levels compared to hospital trained nurses	The value of ongoing clinical education and educational resources at hospitals
2 & 3	Similar resilience levels across clinical areas / employment status.	No significant difference based on clinical area or employment status	
2 & 3	No comparisons for registration held	No significant difference based on registration held	Not explored
2 & 3	Influence of age and experience on resilience, mixed findings.	No association with age, years of experience, or years at the study hospital	Participants believed more experienced nurses were more resilient
2 & 3	Reported Australian mean CD-RISC scores 58.2-75.9	Sample CD-RISC 73.1 mean	Not explored
2 & 4	Prevention of negative psychological outcomes	Not investigated	Physical and mental exhaustion
2 & 4	Staff retention a consequence of high resilience levels	Not investigated	Reduced hours due to stress, saw others leave due to stress
2 & 4	Managers can affect resilience	Not investigated	Managers can affect resilience

Study Objective	Concept Analysis / Literature	Quantitative Data	Qualitative Data
2 & 4	Group resilience is rarely explored in the literature	Not investigated	Importance of group resilience highlighted
2 & 4	Nurse's independently adopted strategies to manage stress	Not investigated	Participants reported adopting strategies and supports which helped manage stress
2 & 4	Resilience → Job satisfaction Nurse satisfaction leads to increased quality of care	Not investigated	Need Job satisfaction → Resilience
1, 2 & 4	Resilience is essential	Not investigated	Resilience is essential
1, 2 & 4	High stress profession	Not investigated	Wide range of pressures and challenges faced
1,2 & 4	Develops across the lifespan	Not investigated	Develops across the lifespan
1,2 & 4	Personal faith did not feature strongly	Not investigated	Personal faith did not feature strongly
2 & 5 role of organisational values	Individual and organisational responsibilities to sustain/promote resilience. Focus has largely been on the individual.	84% knew all the values and there were high levels of value congruence Holding a strong opinion was indicative of resilience	Tangible organisational values = higher resilience Organisation perceived as not being true to the values = lower resilience

= Confirmation =Discordance = Expansion

Eighteen key areas were identified, 12 showed concordance across the data sources, three demonstrated discordance and there were three areas where there was expansion across data sources (Table 6). Confirmation was evident between the literature and qualitative data in relation to key findings about definitions of nurse resilience displayed in the first two rows of the joint display. There were similarities in the definitions presented in the literature and participant's descriptions of resilience in the focus groups. Participants' descriptions of resilience confirmed both the definitions presented in the wider literature and the key attributes of nurse resilience identified in the concept analysis.

Discordance across all three data sources was identified in findings relevant to the personal characteristics of age and experience, and nurse resilience. There were mixed findings about the influence of age and experience on nurse resilience levels in the literature, the quantitative data found no association between age or years of experience which was in contrast to the qualitative data, where participants expressed a belief that resilience increased with experience. The focus on individual resilience in the literature with little exploration of group resilience was in contrast to (evidence of discordance) qualitative findings in this study, where the notion of group resilience featured strongly. Lastly, discordance was also found in relation to job satisfaction, with the literature predominately considering job satisfaction a consequence of resilience whereas, participants in this study described how they needed job satisfaction to maintain their resilience.

While quantitative findings confirmed evidence in the literature that higher educational levels and attainment of formal qualifications are associated with higher levels of resilience, the qualitative data expanded on the role of education by highlighting the importance of

ongoing clinical education and educational resources offered by hospitals. Focus group participants felt having dedicated education time at work and access to educational resources and supports bolstered resilience. Associations with resilience and registration held were not previously reported in the literature; quantitative data were tested for any association and found no significant difference in resilience levels based on type of registration, expanding knowledge in this area.

A key area of expansion across data sources was evident in the role of organisational values. The literature has primarily focused on individual factors related to nurse resilience, with little consideration of organisational factors. The quantitative results indicated a high level of value congruence and that strong opinions about the organisational values were associated with higher resilience levels. The qualitative findings revealed that whether or not participants felt the values were being upheld by their employer altered the influence of the values on their resilience. Both the quantitative and qualitative findings expanded on what is known about nurse resilience by exploring an area previously uninvestigated in the literature. While the quantitative data provided evidence that organisational values could significantly affect nurse resilience, the qualitative data further expanded on these findings by providing an understanding of how and why the values could affect nurse resilience positively or negatively.

5.5 Chapter Summary and Summary of Integration Results

The results from the quantitative and qualitative data collected for the study have been presented in this chapter. Integration of the three data sources using a joint display identified numerous areas where the findings of this study confirmed the literature and

where there was confirmation between quantitative results and qualitative findings. This included definitions of resilience, associations, and factors which could affect resilience. Three key areas of discordance were found where the study findings differed from the literature, namely concerning experience and resilience levels, the notion of group resilience, and the relationship between job satisfaction and resilience. There were also three areas where this study's findings expanded on the literature by highlighting the importance of in-hospital education, testing for associations between registration held and resilience levels, and investigating the role of organisational values. The integration process is continued in Chapter Six where mixed methods results that address the study aim are presented, and in Chapter Seven where results relating to the study objectives are discussed with reference to each other, the concept analysis and integrative review, presented in Chapters Two and Three.

Chapter 6. The Impact of Organisational Values on Nurse Resilience

6.1 Introduction

The impact of organisational values on nurse resilience was previously unreported in the literature. In order to address this gap, the aim of this study was to investigate the impact of organisational values on the resilience of nurses working in a value-based organisation. This chapter presents specific results which address the study aim. Quantitative and qualitative data were selected from the results presented in the previous chapter, a manuscript was developed and subsequently accepted for publication in the Journal of Nursing Management (Cooper et al., 2021).

Reference:

Cooper, A. L., Brown, J. A., & Leslie, G. D. (2021). The impact of organisational values on nurse resilience: A mixed methods study. *Journal of Nursing Management*. doi.org/10.1111/jonm.13338

6.2 Published Results

In accordance with the journal's copyright rules, the accepted version of the manuscript is presented below.

The impact of organizational values on nurse resilience: A mixed methods study

Abstract

Aim
To investigate the impact of organizational values on nurse resilience.

Background
Nurses encounter significant occupational adversity which can result in negative psychological consequences. Investigating the role of resilience as a protective factor focuses on what enables some nurses to positively adapt in challenging work environments. Comparatively little attention has been paid to organizational factors and nurse resilience.

Method
A two-phase mixed methods design comprising a cross-sectional survey and focus groups.

Results
Three hundred and ninety-four nurses responded to the survey with 25 participating in four follow up focus groups. Significant associations were found between resilience levels and agreement with organizational values (p=.022) and agreement about the importance of values (p=.018). Three themes relating to organizational values were identified; Pressures and Challenges, Supports and Strategies, and Impact of Organizational Values.

Conclusions
Organizational values may positively impact resilience if nurses concur with those values and believe they are shared by their employer.

Implications for Nursing Management
To promote nurse resilience organizations and nurse leaders should consider developing, implementing and operating with a set of employee-adopted values, which need to be demonstrably upheld across the organization.

Keywords: resilience, nurse, organizational values, adversity, stress

Background
Nurses face adversity (unpleasant or difficult situation (English Oxford Dictionary, 2018), placing them at risk of burnout, depression, anxiety and post-traumatic stress disorder (Hegney, Rees, et al., 2015; Mealer et al., 2012). The prevalence of these outcomes reported in nursing populations led to a focus on nurse resilience, which seems to act as a protective factor, with nurses who possess higher levels of resilience having lower incidences of negative psychological symptoms (Mealer et al., 2012). Resilience is a dynamic construct varying over context and time, influenced by internal and external factors (Connor & Davidson, 2003; Cooper et al., 2020). Research, policies and practice have focused on the individual in relation to maintaining and building resilience, with attempts to discover the personal characteristics of resilient nurses (Gillespie et al., 2009; Guo et al., 2017) and short-term interventions to build individual nurses' resilience (Babanataj et al., 2019; Craigie et al., 2016).

It is important to also consider how nursing work and the healthcare work environment affects resilience, given external factors reported to impact nurse wellbeing include working conditions and organizational culture (Taylor, 2019; Virkstis et al., 2018). Work environment refers to the conditions in which an employee operates which includes physical and psychosocial conditions, processes and procedures (Foldspang et al., 2014). Focusing only on the individual fails to address conditions which contribute to burnout and labels the inability to cope as a personal failure, rather than a result of the conditions endured at work (Taylor, 2019). The work context and organizational factors which can promote and diminish

resilience need to be explored to inform interventions and provide direction to employers (Cooper et al., 2021).

Organizational values are commonly found in both secular healthcare organizations and those which draw on a faith-base. The values of secular and faith-based values often overlap, however those of a faith-based organization explicitly draw on religious scripture whereas secular organisational values tend not to. The importance of organizational values are well known and employers aim for employees to share and commit to these values (Edwards & Cable, 2009). Value congruence is the extent to which an individual's values match the values of the organization they work for (Molina, 2016). Individuals are attracted to organizations with values which are congruent with their own (Ren & Hamann, 2015) and those with a shared professional identity such as nurses, tend to have agreed norms and values (Fitzgerald, 2020). Value congruence is key to achieving the intent of organizational values including employee engagement, job satisfaction and reduced stress levels (Edwards & Cable, 2009; Fiabane et al., 2013; Ren & Hamann, 2015). To the best of our knowledge, no study has considered the influence an organization's values could have on nurse resilience. This study aimed to investigate the impact of organizational values on nurse resilience.

Methods

Design

A two-phase mixed methods design, with data collected in Phase 1 via a cross-sectional survey and in Phase 2 via focus groups. This design was adopted to measure the association between value congruence and resilience levels and explore participants perspectives on organizational values and nurse resilience. Utilizing a mixed methods design provided a fuller picture of the impact of organizational values on nurse resilience. Approval was granted by the study hospital Human Research Ethics Committee (1182) and reciprocally approval by the University (HRE2017-0402).

Study Setting

A faith-based hospital was selected for the study site due to the strong emphasis placed upon organizational values, applied from recruitment through to everyday working life, and promoted and celebrated through regular events. The healthcare group to which the site belongs has five core values explicitly described in vision, mission and values statements (Figure 1). The site is a 578-bed private, not-for-profit acute hospital offering a range of services. In 2017/2018 the hospital had 94,600 patient presentations, 72,200 of these were inpatient presentations with an average length of stay of 2.11 days.

Hospitality – A welcoming openness, providing material and spiritual comfort to all.
Compassion – Feeling with others and striving to understand their lives, experiences, discomfort and suffering with a willingness to reach out in solidarity.
Respect – Treasuring the unique dignity of every person and recognising the sacredness of all creation.
Justice – A balanced and fair relationship with self, neighbour, all of creation and with God.
Excellence – Striving for excellence in the care the services we provide.

Figure 1. Study site organizational values reproduced with permission (St John of God Healthcare, 2019).

Participants

All licensed nurses employed at the study hospital, who directly cared for patients during the survey period, were eligible to participate. Agency, casual and student nurses were

excluded, as were nurses in non-direct care roles such as Nurse Managers. Potential participants were identified through Human Resources and were sent a questionnaire (Phase 1), including an invitation to indicate their willingness to participate in a focus group (Phase 2).

Data Collection

Phase 1

The survey collected data on participant characteristics and knowledge about the organizational values. Using five-point Likert scales, participants were asked to indicate their level of agreement with two statements: 'I agree with the hospital values' and 'the hospital values are very important'. The final component was the 25-item Connor-Davidson Resilience Scale (CD-RISC) (Connor & Davidson, 2003), used with permission, to measure individual resilience. This self-report scale has a total possible score ranging from 0-100, a higher score reflected a greater level of resilience. The CD-RISC has previously been assessed for reliability (Cronbach's α 0.89) with a test-retest correlation of 0.87 (Connor & Davidson, 2003).

An eligible hospital nursing population of N=758 was identified, with a minimum of n=255 participants needed to reflect a true estimate, at a 95% confidence level and 5% confidence interval (National Statistical Service, 2017). A participant information sheet was enclosed with each questionnaire and consent was inferred by completion and return.

Phase 2

Qualitative data were collected using semi-structured focus groups. Questions to facilitate discussion were determined before Phase 1 (Figure 2). Potential participants were given an information sheet and had the opportunity to ask questions and discuss the project with researchers. Written consent was obtained prior to the focus groups. Four one-hour semi-structured focus groups were conducted by an experienced facilitator (JB) and an assistant (AC) who took field notes. All focus groups were recorded and transcribed. Data were de-identified to ensure confidentiality. Final sample size was determined by data saturation which was achieved when no new data nor coding was generated (Fusch & Ness, 2015).

1) What kind of stresses do you face at work?
2) How do you cope with the stresses of work?
3) What do you think resilience is?
4) How important do you think it is to be resilient as a nurse?
5) What do you think helps nurses develop resilience?
6) What do you think threatens or erodes resilience in nurses?
7) Do you feel the values of a hospital can have an effect on resilience?
8) Has anyone worked at any other hospitals (other than those in the current organisation)?
9) Compared to other hospitals you have worked at; how do the values of this hospital affect resilience and coping?

Figure 2. Focus group questions

Data Analysis

Phase 1

Entered data from returned surveys were exported to Stata (StataCorp, 2015) for statistical analysis. The significance level was set at $p<0.05$. Descriptive statistics were calculated to represent participants' collective characteristics, with the CD-RISC scores calculated by summing the total of all items (Davidson & Connor, 2017). Two one-way analyses of variance (ANOVA) were performed to assess the relationship between participant's resilience levels (CD-RISC) and measures indicating 1) agreement with organizational values, and 2) importance of organizational values. The dependent variable was resilience level, while the independent variables were treated as ordinal variables by applying polynomial contrasts to the five levels of agreement. Polynomial contrasts included linear, quadratic, cubic and quartic (i.e. all contrasts up to n-1 levels of agreement). Models were checked for heterogeneity of variance and normality of residuals.

Phase 2

Thematic analysis of qualitative data was undertaken (Braun & Clarke, 2006). This included familiarization with the data (phase 1) which included taking field notes, listening to each focus group twice prior to transcription and reading transcripts in their entirety multiple times. Initial codes were generated (phase 2) independently by two researchers, before searching for themes (phase 3) by looking for similarities of concepts within the codes. These themes were then reviewed (phase 4) and discussed by all researchers, the essence of each theme was defined and theme names were finalized. Once a comprehensive description of nurse resilience in a values-based organization was drawn from the data (phase 5), member checking was utilized to ensure the interpretation was a true reflection of participant's experiences (Streubert & Carpenter, 2011). Findings were written up with supporting evidence of themes within the data (phase 6). NVivo (QSR-International, 2015) was used to assist in the analysis process.

Results

Phase 1

The survey was open for four weeks during August and September 2017. A total of 758 questionnaires were distributed to nurses who met inclusion criteria with a 52% (n=394) response rate. Three incomplete surveys were excluded from analysis. The mean CD-RISC score was 73.1 (SD, 11.1) with a range of 37-100. Participant characteristics are presented in Table 1 and data available on the population and study sample were compared to assess if the study sample was representative.

Table 1. Survey participants and population characteristics

Characteristic	Sample (n=392)	Population (n=758)
Age (years)	19-76	-
Female	96% (n=374)	94% (n=712)
Registration Registered nurse Enrolled nurse Dual registered nurse/midwife	 82% (n=321) 15% (n=58) 3% (n=11) *n=1 missing data	 82% (n=622) 16% (n=118) 2% (n=18)

Characteristic	Sample (n=392)	Population (n=758)
Employment[a] Part-time Full-time	 62% (n=236) 38% (n=146) *n=10 missing data	 85% (n=642) 15% (n=116)
Characteristic	Sample (n=392)	Population (n=758)
Highest nursing qualification held Bachelor degree Postgraduate certificate Diploma/hospital certificate Enrolled nurse Postgraduate diploma Hospital trained Registered nurse Master's degree	 46% (n=177) 19% (n=75) 15% (n=60) 12% (n=46) 6% (n=24) 2% (n=7) *n=3 missing data	 - - - - - -
Mean years of experience as a nurse	18 (1-50)	-
Mean years working with study organization	10 (1-40)	-

Note. [a]Differences between the sample and population were due to inconsistencies in the definition of full-time employment between human resources and participants

The majority of participants (84%, n=328) identified all five organizational values; while 13% (n=50) knew four values, 3% (n=11) identified three values, with two not responding. High levels of value congruence were evident with 87% (n=342) of participants agreeing with the values. Level of agreement with the values was significantly associated with resilience (overall $F[4, 386] = 3.08$, $p=0.016$). The quadratic contrast, in particular, was significantly associated with resilience (quadratic term $F[1,386] = 5.29$, $p=0.022$), participants at extremes on the Likert scale (strongly agree and strongly disagree) had higher resilience scores (Figure 3).

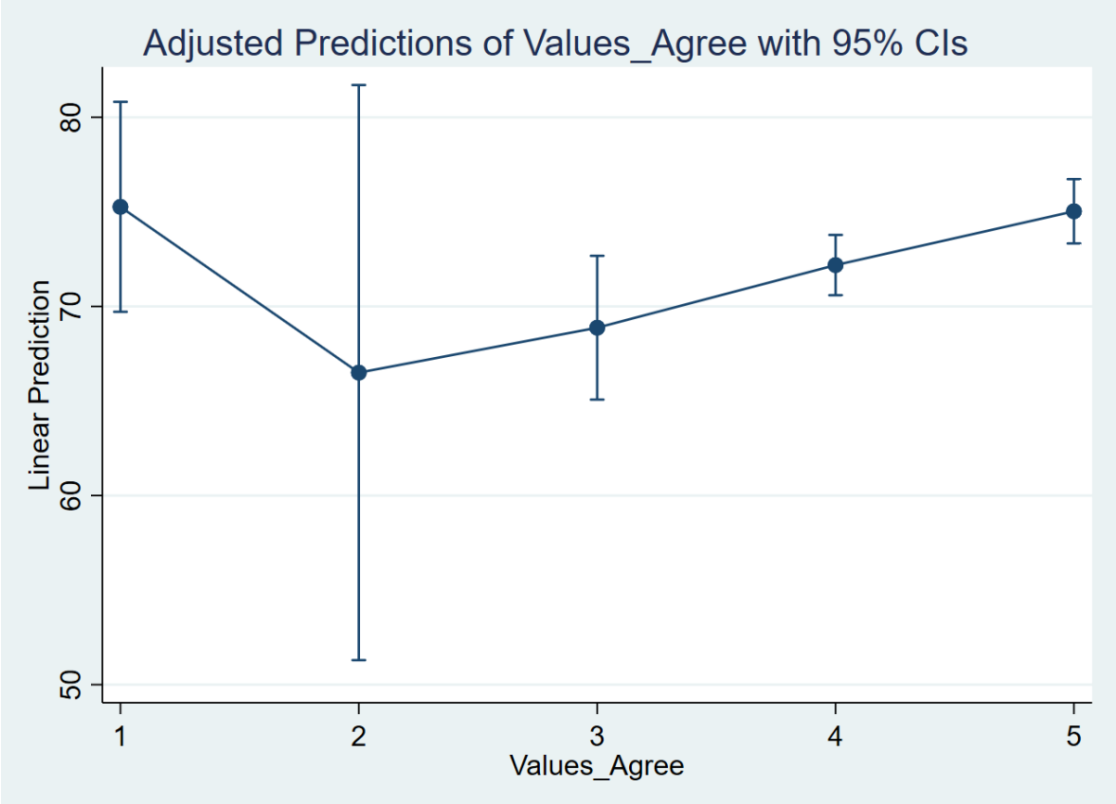


Figure 3. Estimated cell means for level of agreement with organizational values, 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

There was a significant association between the extent to which participants agreed the organizational values were important and mean resilience level (overall F[4, 386] =2.48, *p*=0.043). The quadratic contrast, again, was significantly associated with resilience (quadratic term F[1, 386] =5.62, *p*=0.018), participants at extremes on the Likert scale (strongly agree and strongly disagree) had higher resilience scores (Figure 4). The assumption of equality of variance was met for both models and there was no statistically significant evidence of departure from normality in either model.

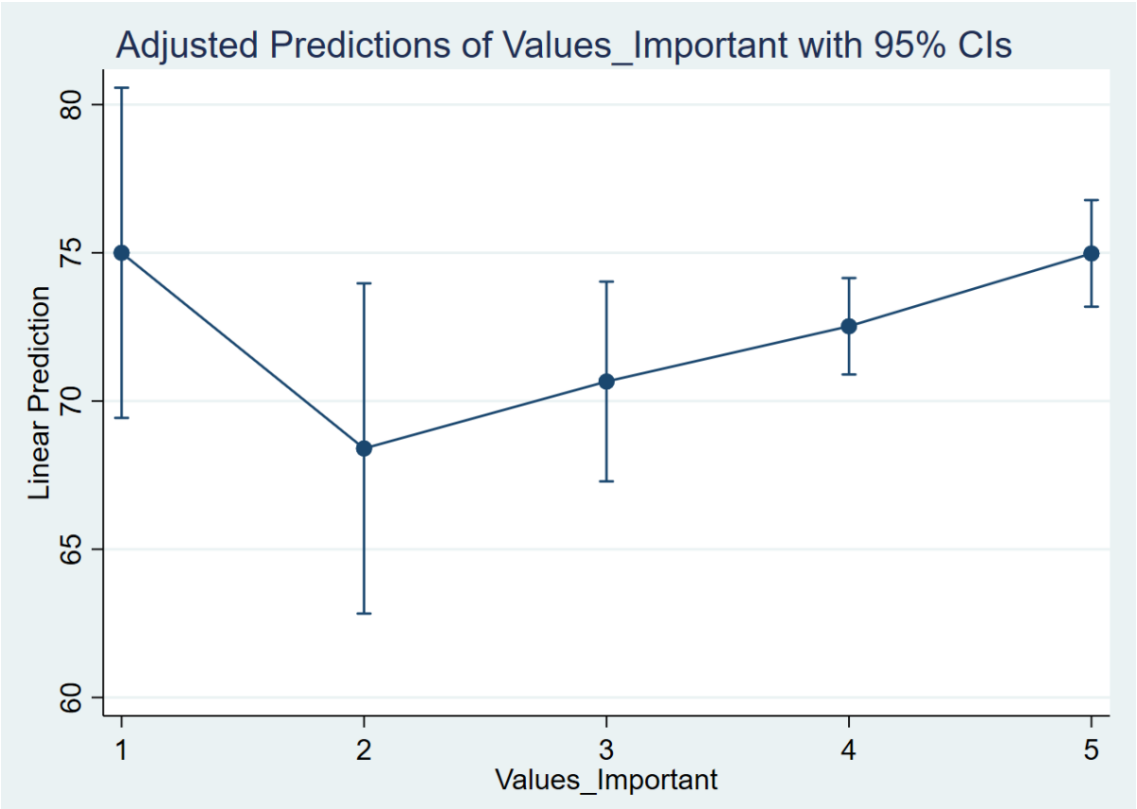


Figure 4. Estimated cell means for importance of organizational value, 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

Phase 2

Four focus groups were conducted in February and March 2018. Initially, 89 Phase 1 respondents indicated interest in participating. The final sample size was determined by participant availability and achievement of data saturation. Four focus groups were conducted with groups of 5-8 participants. Ultimately, n=25 nurses participated, with ages ranging from 29-60 years. Participants had a vast range of clinical experience, working across numerous specialties. The sample consisted of early-career nurses through to nurses nearing retirement (range 4-34 years' experience).

Responses to the nine questions (Figure 2) generated fifty-two codes that contributed to the identification of four themes; Perceptions of Resilience, Pressures and Challenges, Supports and Strategies, and Impact of Organizational Values (Figure 5). All participants who attended member checking sessions (n=7) concurred with the data interpretation. The key sub-themes and themes which related to the aim of this paper, to explore the impact of organizational values on nurse resilience, formed the basis of the reporting of the analysis.

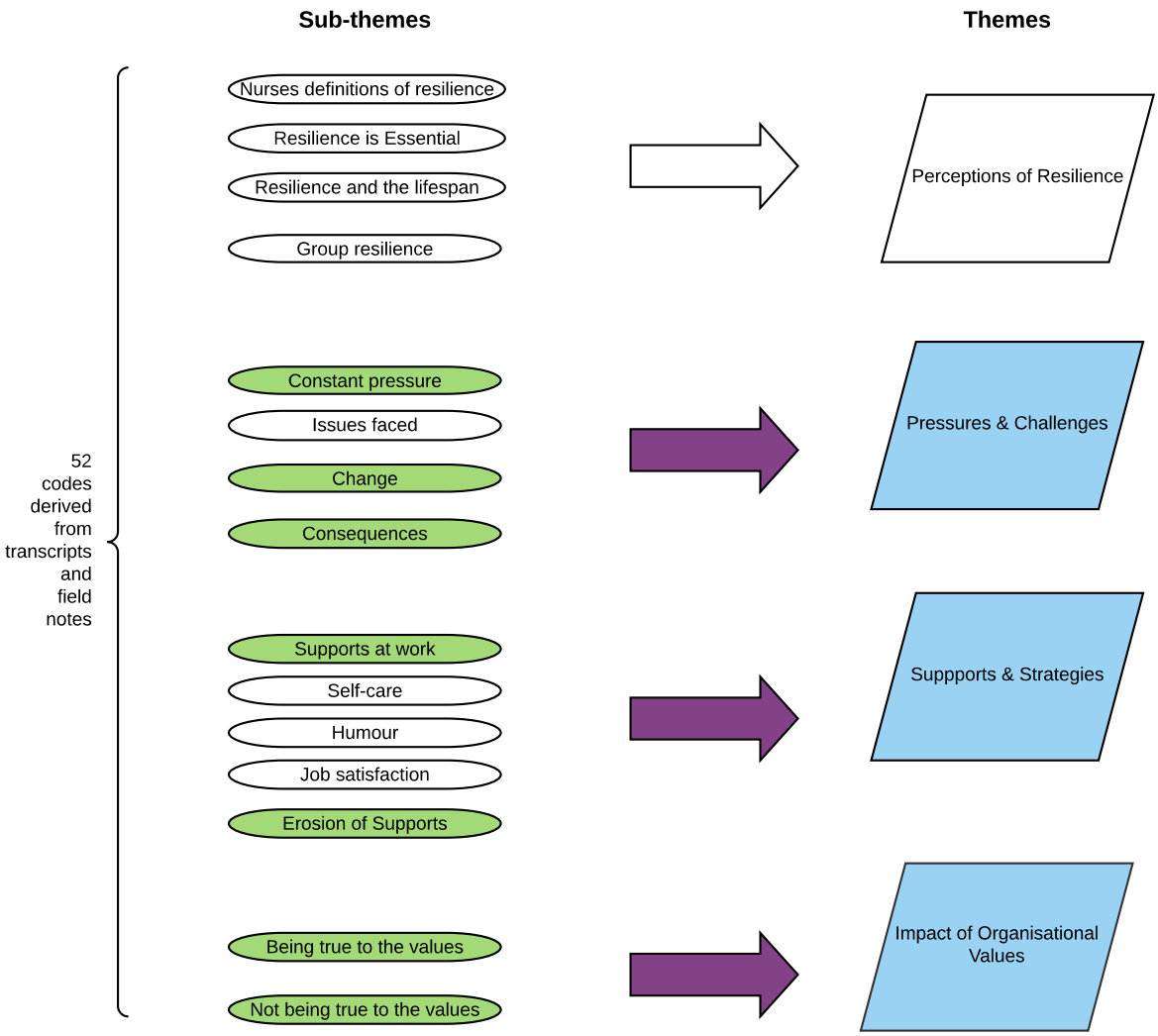


Figure 5. Focus group sub-themes and themes, with key sub-themes and themes highlighted in colour.

Pressures & Challenges and Supports & Strategies

Participants discussed their work environment, challenges and supports at work. These discussions linked to the organizational values and nurse resilience, and revealed factors in participants' work which embodied the values and factors which undermined the values.

<u>Constant Pressure</u>

The pressures and challenges participants faced at work featured strongly. Participants frequently alluded to the pressured nature of their clinical work environments and a continuous struggle to deliver care, which could affect resilience. Participants described needing to address issues and shortcomings preventing them delivering care effectively, relating to the value of **excellence.**

> Participant 17: *'It's unnecessarily exhausting because you're constantly just putting band-aids on…'*

Some participants felt the amount of pressure they were under and the challenges faced were not appreciated by "management".

> Participant 3: *'…what's not understood is you're absolutely on the cusp…'*

Lack of support from managers was seen as a factor which could negatively affect resilience and links to the values of **compassion** and **respect.**

> Participant 8: '*Not feeling supported if you go to… your manager with something that's happened or that you're not happy with and there's no support or nothing changes… it just crushes you… and all those add up… can affect how resilient you are…'*

<u>Supports at Work</u>
Conversely, when participants described supportive managers who provided good leadership and demonstrated **compassion** this helped sustain resilience.

> Participant 6: '*You can be on a ward full of nurses… on a really busy day and you are alone; it's good to have your managers, there… at least checking in, are you ok? (agreement from others). Can I help you? That kind of gets me through*'

The potential for managers to positively influence resilience by demonstrating **compassion, hospitality and respect** was recognized, with a distinction between simply managing and providing real leadership.

> Participant 4: '*…they were not only managing us they were also leading us… and you were actually learning something from them and you were more empowered… that you were a good nurse, you're doing a good job*'

Good teamwork was a vital source of support which got participants through difficult shifts and sustained resilience, reflecting the values of **hospitality, compassion and respect**.

> Participant 25: *'…we've got such a good team we all get on so well (others agree). We say… it's going to be a s*&# day but we're just going to stick together and we will get through it and we will talk about… I think that's what gets us all through*'

<u>Change</u>
Participants were acutely aware of recent organizational change and how this impacted on them and their patients. They described how the acuity and complexity of patients had increased and resources had reduced, threatening **excellence** in care and resilience.

> Participant 17: '*…you're expected now to do… this much work, say a meter's worth of work in ten centimetres… that's all the resources you get given. So, more work, more patients… more complexity of work so it's higher risk patients… but you don't have any more staffing in fact you have less staffing… (others agreeing)*'

Participants also felt that the organization had changed, resulting in the prioritization of business and finances over patient care.

> Participant 19: '*…it has changed and I think because of that business model… then everything is focused on saving money, making money and following a business model as opposed to a health service model*'

Consequences

The pressures and challenges participants described had a range of consequences, potentially undermining nurse resilience and the value of **justice** as participants struggled to maintain fair and balanced relationships. A number of participants were aware of the psychological effects the pressures and challenges they faced at work had.

> Participant 4: '*Every day when we go home I just feel completely mentally exhausted (others agree). You are almost unable to function when you go home because mentally you are so done you just can't think of anything else. It takes me hours to unwind…*'

Another participant suggested many nurses also suffer physiological effects as a result of their work.

> Participant 19: *'…we probably just think… that's that extra cup of coffee that I've had that my heart's racing… the high blood pressure well that's just an age thing, …getting old and the bad back well that's just a nursing thing. But all those muscles and aches and pains can be signs of not coping and low resilience...*'

Participants were aware that the pressures and challenges they experienced at work impacted on their families, in particular finding it hard to engage with family after a stressful day at work.

> Participant 18: '*The hardest thing is when you've got a family who are eager-eyed when you get home and… I've got nothing*'

Erosion of Supports

Participants described environments where they were under constant pressure, faced daily issues and had experienced significant changes. There was recognition that the stresses of work could impact psychological and physical wellbeing, and personal relationships. Although participants identified supports and strategies which bolstered their resilience and enabled them to manage workplace stress these were seen as under threat. Participants described supports being eroded through reductions in nursing hours, increasing workloads, loss of education time and nurse educator roles.

> Participant 18: '*…they know that you're there because we need that job satisfaction… that's important because that drives you on the next day to go back and do it again. Yet they're taking it away, but they're not just taking it way they're making it so much worse because they're dropping the nursing hours and we're distraught… (others talk and agree)*'

These changes resulted in participants describing a breakdown of the team dynamic in their clinical area with the potential to compromise resilience and the values of **compassion, respect and excellence**.

> Participant 15: '*We don't have proper handovers anymore so we're not put together in a group to talk about things, it's just like you go there… you've kind of lost your cohesion as a team (others agree)*'

Breakdown of teams could reduce opportunities to practice **compassion**, with little time to come together or reach out in solidarity. Loss of nursing hours and education was seen to undermine the value of **respect** for the nursing role and nurses as individuals, with reduced resources affecting the extent to which nurses could strive for **excellence** in the delivery of care.

Impact of Organizational Values

Questions about the role organizational values could play in nurses' resilience revealed the potential for positive and negative affects depending on whether nurses felt the organization was being true to the values. The 'organization' in participants' descriptions was immediate ward/unit management, management at the study hospital, as well as group management.

<u>Being True to the Values</u>

The values were considered to have the potential to positively impact on nurses and their resilience when lived. Participants recalled feeling united, supported, having a sense of community and that the organization was a good place to work when they felt the organization was being true to the values.

> Participant 17: '*I think that the core values when I first started working in this organization made me feel like I was really supported in what I was doing, in my decision making, whatever I was doing within the team that made you feel automatically stronger, more confident… as a nurse and whatever you were doing and you sort of built on that…'*

Some participants felt that the distinct values the organization held were a positive, differing from previous employers.

> Participant 2: '*…when I first started here I liked that (study site) had values that were very clear and were very defined (others agree) because at X… I don't think we were ever told that X had any values it was just… come and get a job. So, I quite liked that there were those values that we had to strive towards it was like a goal at the end of each shift… that we tried to meet, hold up to those values*'

The potential for the values to be helpful in managing issues with colleagues and addressing inappropriate behaviour was also raised.

> Participant 7: '*I think they are pulled up by the fact that the hospital… is a Catholic hospital and I sometimes remind them that… you're saying these things and it's a Catholic hospital…*'

<u>Not Being True to the Values</u>

There was widespread feeling that the organization was not currently living up to the values, leading to participants feeling undervalued.

> Participant 25: *'It makes you kind of change how you feel about the hospital if they don't respect you or have any compassion for what you're going through when you're working on the ward…'*

Some participants reported the values were upheld in their individual wards or departments but felt there was a failure at an organizational level to uphold the values.

> Participant 2: '*Those values have to come from above, from the very top of the tree and filter all the way down and if we don't feel like we're being treated with compassion or excellence or respect then… it's not going to follow through to the patients (others agree)*'

The values not coming from above was attributed to a business approach which led to actions and changes participants felt contradicted or undermined the values.

> Participant 6: '*…at CEO level… the highest level, I think it's more budget orientated than thinking about the values'*

This led to feelings of disillusionment with participants being presented with values that they felt their employer was not abiding with.

> Participant 16: *'It's a sort of disenchantment… when you think yeah, they are there but we're not actually living it'*

Having values and not upholding them was seen as being damaging, resulting in a decrease in staff morale and resilience.

> Participant 23: '*…maybe the hospital's values might actually be working against the hospital now because we are pressured, it is pressured all the time and we're thinking we're not feeling it… (others agree)*'

Discussion

The aim of this study was to investigate the impact of organizational values on nurse resilience. We found organizational values have the potential to positively impact resilience, when nurses agree with those values and feel the values are upheld by the organization. In contrast, perceived failures at an organizational level to uphold the values were detrimental for resilience.

High levels of value congruence were evident in the cross-sectional survey with the majority of participants knowing and agreeing with the values. This high level of buy in could have been expected to lead to benefits for both employees and the organization (Edwards & Cable, 2009; Fiabane et al., 2013; Graham et al., 2016). However, qualitative data revealed the complexity of the relationship between nurse resilience and the organizational values. Despite high levels of agreement with the values, participants at the time of the study felt the values were not being upheld at an organizational level. This was a cause of discontent and disillusionment that made participants feel undervalued. Some participants reported the values were followed within their ward or department but not at an organizational level, reflecting the subcultures which can exist in large organizations (Verplanken, 2004). The quantitative data revealed participants who strongly agreed or disagreed with the values and their importance had the highest resilience levels, suggesting holding a strong opinion could be indicative of resilience.

Changes participants described at the organization led to the development of value incongruence (Verplanken, 2004). Although the values had remained the same, participants

now felt there was a disconnect between the espoused values and the actions of the various levels of management. In an example of an extreme case of systemic failures in hospital patient care, it was found that while there was a high level of value congruence between individual values and the espoused organizational values, the managerial decision making did not reflect these shared values (Casali & Day, 2010). This contradiction was cited as a contributing factor to the unhealthy organizational culture that led to serious breaches of clinical and professional practice (Casali & Day, 2010). This case demonstrated the potential for damage to staff resilience and morale when value incongruence occurs, which could lead to lower quality of care and lower patient satisfaction when staff feel a strongly defined set of values are not upheld.

The mean resilience level in our sample was similar to mean CD-RISC scores reported in other local nursing populations (Gillespie et al., 2009; Hegney, Eley, et al., 2015; Hegney, Rees, et al., 2015). Although we found similar resilience levels the study was conducted at a time when participants expressed dissatisfaction with changes at the organization and felt the values were not being upheld. Resilience levels may have been higher at times in the past, when participants felt the values were upheld. In the wider nursing literature there is evidence that lower nurse satisfaction correlates with lower patient satisfaction (Goh et al., 2018; Janicijevic et al., 2013). Although no other study has specifically investigated the impact of organizational values on resilience there is evidence that work environment can affect nurse and patient outcomes (Aiken et al., 2018). A study of 535 American hospitals found those that improved their work environments compared to those that did not, had better patient outcomes, higher patient experience ratings and nurses had more confidence in the quality of patient care delivered (Aiken et al., 2018), demonstrating positive action from organizations can result in measurable improvements which benefit patients and staff. The value incongruence participants described in our study had the potential to erode resilience levels if this mismatch continued. The perception of the organizational values not being upheld was clearly linked with difficulties participants described in their work environments and delivering patient care.

Limitations

The study was conducted at a single site with specific faith-based values which limits the generalizability of the findings. Data were not collected on respondents' personal beliefs which, could have enabled exploration of how the organization's values interacted with individual values. The nature of a cross-sectional survey and the CD-RISC meant participants' resilience levels were only captured at one point in time. Participants self-selected in both phases of the study which could result in bias.

Conclusions

Despite these limitations this is the first known study to investigate the impact of organizational values on nurse resilience, therefore further research into the phenomenon is warranted. Future areas for research we would recommend include; investigating the impact of organizational values on nurse resilience in other settings including secular organizations, determining which work conditions promote nurse resilience and how managers affect nurse resilience. We found that organizational values have the potential to positively impact resilience if nurses agree with those values and feel the values are upheld. Living the values at every level of an organization is essential for maintaining value congruence. If nurses feel the organizational values are not being upheld this can lead to value incongruence which is detrimental for nurse resilience and morale.

Implications for Nursing Management

There is currently a lack of research investigating the impact of work conditions such as organizational values on nurse resilience (Cooper et al., 2021). There is however, evidence that suggests better work conditions and higher levels of nurse satisfaction result in better outcomes for both nurses and patients (Aiken et al., 2018). As many organizations operate with a set of core values, based on the results of our study, nurse managers and leaders should ensure these values are actively promoted and upheld at all levels within their organization. By operating with a set of employee-adopted organizational values and maintaining value congruence, benefits for both employees and organizations including improvements to nurse resilience, staff morale and job satisfaction levels can be achieved.

References

Aiken, L. H., Sloane, D. M., Barnes, H., Cimiotti, J. P., Jarrín, O. F., & McHugh, M. D. (2018). Nurses' and patients' appraisals show patient safety in hospitals remains a concern. *Health Affairs*, *37*(11), 1744-1751. doi:10.1377/hlthaff.2018.0711

Babanataj, R., Mazdarani, S., Hesamzadeh, A., Gorji, M. H., & Cherati, J. Y. (2019). Resilience training: Effects on occupational stress and resilience of critical care nurses. *International Journal of Nursing Practice*, *25*(1), e12697. doi:10.1111/ijn.12697

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101. doi:10.1191/1478088706qp063oa

Casali, G. L., & Day, G. E. (2010). Treating an unhealthy organisational culture: The implications of the Bundaberg Hospital Inquiry for managerial ethical decision making. *Australian Health Review*, *34*(1), 73-79. doi:10.1071/AH09543

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor- Davidson Resilience Scale (CD-RISC. *Depression and Anxiety*, *18*(2), 76-82. doi:10.1002/da.10113

Cooper, A. L., Brown, J. A., & Leslie, G. D. (2021). Nurse resilience for clinical practice: An integrative review. *Journal of Advanced Nursing*. doi:10.1111/jan.14763

Cooper, A. L., Brown, J. A., Rees, C. S., & Leslie, G. D. (2020). Nurse resilience: A concept analysis. *International Journal of Mental Health Nursing*. doi:10.1111/inm.12721

Craigie, M., Slatyer, S., Hegney, D., Osseiran-Moisson, R., Gentry, E., Davis, S., Dolan, T., & Rees, C. (2016). A pilot evaluation of a mindful self-care and resiliency (MSCR) intervention for nurses. *Mindfulness*, *7*(3), 764-774. doi:10.1007/s12671-016-0516-x

Davidson, J. R. T., & Connor, K. M. (2017). Connor-Davidson Resilience Scale (CD-RISC) manual. In: Unpublished. 06-01-2017 and partly accessible at: www.cd-risc.com

Edwards, J. R., & Cable, D. M. (2009). The value of value congruence. *Journal of Applied Psychology*, *94*(3), 654-677. doi:10.1037/a0014891

English Oxford Dictionary. (2018). *Adversity*. Retrieved from https://en.oxforddictionaries.com/definition/adversity

Fiabane, E., Giorgi, I., Sguazzin, C., & Argentero, P. (2013). Work engagement and occupational stress in nurses and other healthcare workers: the role of organisational and personal factors. *Journal of Clinical Nursing*, *22*(17-18), 2614-2624. doi:10.1111/jocn.12084

Fitzgerald, A. (2020). Professional identity: A concept analysis. *Nursing Forum*, *55*(3), 447-472. doi:10.1111/nuf.12450

Fusch, P., & Ness, L. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, *20*(9), 1408-1416.

Gillespie, B. M., Chaboyer, W., & Wallis, M. (2009). The influence of personal characteristics on the resilience of operating room nurses: A predictor study. *International Journal of Nursing Studies*, *46*(7), 968-976. doi:10.1016/j.ijnurstu.2007.08.006

Goh, M. L., Ang, E. N. K., Chan, Y., He, H., & Vehviläinen-Julkunen, K. (2018). Patient satisfaction is linked to nursing workload in a Singapore hospital. *Clinical Nursing Research*, *27*(6), 692-713. doi:10.1177/1054773817708933

Graham, J. R., Shier, M. L., & Nicholas, D. (2016). Workplace congruence and occupational outcomes among social service workers. *The British Journal of Social Work*, *46*(4), 1096-1114. doi:10.1093/bjsw/bcu153

Guo, Y., Cross, W., Plummer, V., Lam, L., Luo, Y., & Zhang, J. (2017). Exploring resilience in Chinese nurses: A cross-sectional study. *Journal of Nursing Management*, *25*(3), 223-230. doi:10.1111/jonm.12457

Hegney, D., Eley, R., Osseiran-Moisson, R., & Francis, K. (2015). Work and personal well-being of nurses in Queensland: Does rurality make a difference? *Australian Journal of Rural Health*, *23*(6), 359-365.doi:10.1111/ajr.12206

Hegney, D., Rees, C. S., Eley, R., Osseiran-Morrison, R., & Francis, K. (2015). The contribution of individual psychological resilience in determining the professional quality of life of Australian nurses. *Frontiers in Psychology*, *6*, 1613. doi:10.3389/fpsyg.2015.01613

Janicijevic, I., Seke, K., Djokovic, A., & Filipovic, T. (2013). Healthcare workers satisfaction and patient satisfaction - where is the linkage? *Hippokratia*, *17*(2), 157.

Mealer, M., Jones, J., Newman, J., McFann, K. K., Rothbaum, B., & Moss, M. (2012). The presence of resilience is associated with a healthier psychological profile in intensive care unit (ICU) nurses: Results of a national survey. *International Journal of Nursing Studies*, *49*(3), 292-299. doi:10.1016/j.ijnurstu.2011.09.015

Molina, A. D. (2016). Value congruence. In A. Farazmand (Ed.), *Global Encyclopedia of Public Administration, Public Policy, and Governance*. Springer. doi:10.1007/978-3-319-31816-5

National Statistical Service. (2017). Retrieved from http://www.nss.gov.au/nss/home.nsf/pages/Sample+size+calculator

QSR-International. (2015). *NVivo qualitative data analysis software: Version 11*. In QSR International Pty Ltd.

Ren, T., & Hamann, D. J. (2015). Employee value congruence and job attitudes: The role of occupational status. *Personnel Review*, *44*(4), 550-566. doi:10.1108/PR-06-2013-0096

StataCorp. (2015). *Stata statistical software: Release 14*. In StataCorp LP.
Streubert, H. J., & Carpenter, D. R. (2011). *Qualitative research in nursing : Advancing the humanistic imperative* (5th ed.). Wolters Kluwer Health/Lippincott Williams & Wilkins.
St John of God Health. (2019). *Our vision.* Available at: https://www.sjog.org.au/-/media/files/about-us/our-vision 2021.pdf?la=en&hash=FBCB614FEB29DDD80A5F57F42A2C2FD11BA3D4A8
Taylor, R. A. (2019). Contemporary issues: Resilience training alone is an incomplete intervention. *Nurse Education Today*, *78*, 10-13. doi:10.1016/j.nedt.2019.03.014
Verplanken, B. (2004). Value congruence and job satisfaction among nurses: A human relations perspective. *International Journal of Nursing Studies*, *41*(6), 599-605.doi:10.1016/j.ijnurstu.2003.12.011
Virkstis, K., Herleth, A., & Langr, M. (2018). Cracks in the foundation of the care environment undermine nurse resilience. *The Journal of Nursing Administration*, *48*(12), 597-599. doi:10.1097/NNA.0000000000000687

6.3 Chapter Summary

This chapter presented mixed methods results in the form of a manuscript that addressed the overall aim of the study. The manuscript represents a new research direction to that which has primarily focused on individual factors which affect nurse resilience. Drawing on quantitative and qualitative findings enabled the development of a more complete picture of nurse resilience in the context of a values-based organisation. Level of agreement with the organisational values and the extent to which participants felt their employer upheld the values altered the influence of the values on nurse resilience. Based on the qualitative findings when participants felt the values were upheld this had a positive influence on their resilience and when the organisation was perceived to not upheld the values this was detrimental to resilience. The results demonstrate the potential for organisational values to positively influence resilience when nurses agree with the values and feel that their employer is abiding by the espoused values. With the study aim addressed, the next and final chapter integrates and discusses broader results and findings relating to the study objectives.

Chapter 7. Discussion

7.1 Introduction

This final chapter focuses on the integration of the quantitative and qualitative data sources collected for this study and considers them in the context of the concept analysis and integrative review presented in Chapters Two and Three. The discussion presents synthesised data sources and critically analyses areas of confirmation, discordance, and expansion that relate to the study objectives identified in Table 6 in Chapter Five. The strengths and limitations of this study are examined, and recommendations for practice and research are made. Lastly, a conclusion to the chapter is given that examines the contribution of the study presented in this thesis to research that investigates nurse resilience.

The aim of this study was to investigate the impact of organisational values on nurse resilience. Critical examination of the concept of nurse resilience and research investigating nurse resilience highlighted the skew of research towards individual factors that influence resilience and the need for a clear definition of the construct. The external factors that affect nurse resilience are under-researched and therefore our understanding is incomplete. The mixed methods approach used in this study facilitated a detailed investigation of the impact of organisational values on nurse resilience. Quantitative results demonstrated high levels of value congruence and that strong opinions about the organisational values were associated with higher resilience levels. Qualitative findings highlighted the complexity of nurse resilience and participants' perceptions of their working conditions were closely linked with the extent to which they felt the organisational values were upheld. Areas of

confirmation, discordance, and expansion were identified in the integration process. Key areas included; qualitative findings which were consistent with the use of the concept of resilience in the nursing literature, the importance of group resilience which was in contrast (evidence of discordance) to the literature where the focus has been on individual resilience and expansion on current knowledge of nurse resilience through the investigation of the impact of organisational values on nurse resilience. The integration of the findings of this study with the concept analysis and integrative review provides a critical evaluation of what is known about nurse resilience, application of current knowledge, limitations, and areas for further investigation.

7.2 Integrating the Findings: Defining Nurse Resilience

Through the concept analysis, a working definition that reflects the use of the term resilience in relation to nurses was arrived at (Cooper et al., 2020). The data analysis from this study supported this working definition and the key attributes that describe resilience, with all six attributes featuring in the qualitative data. In addition, the findings from the quantitative and qualitative components of this study identified important factors that contribute to resilience and have received little attention in the nursing literature to date. The quantitative data revealed the potential for organisational values to affect resilience levels depending on nurses' level of agreement with those values. The qualitative data revealed how nurses' perceptions of whether the values were being upheld by the organisation affected resilience. During the focus groups the importance of group resilience emerged and how the team within which nurses work and their managers influence resilience. Due to the focus on the individual, important elements of nurse resilience are possibly missing from the literature and as a result in the working definition from the

concept analysis. A more complete definition of nurse resilience needs to reflect the influence organisations and the teams nurses work within may have. The concept analysis definition was derived purely on the basis of the literature. Now, having conducted this study more is known about the influence of external factors on nurse resilience. The following revised definition is proposed:

Resilience is a complex and dynamic process, ***ground in individual factors, but influenced by organisational philosophy, management performance, and the teams nurses work within****; which when present and sustained enables nurses to positively adapt to workplace stressors, avoid psychological harm and continue to provide safe, high quality patient care.*

This revised definition reflects the responsibility both nurses and their employers have to promote and sustain resilience. Nurses need to develop strategies to cope with the unavoidable stressors of their work and sustain their resilience, while employers need to provide optimal conditions and abide by the values the organisation sets to promote nurse resilience. Improving working conditions and establishing organisational values that nurses concur with and are tangible could aid resilience. Further research which considers the duty of care organisations have for the nurses they employ and the influence of organisational factors on individual resilience is needed to optimise nurse resilience.

7.2.1 Nurses' Perceptions of Resilience

Participants described resilience in various ways, including the ability to cope, bouncing back, survival, flexibility, optimism, and going with the flow. Bouncing back is a metaphor frequently employed in the nursing literature (Aburn et al., 2016; Earvolino-Ramirez, 2007;

Flarity et al., 2013; Lanz & Bruk-Lee, 2017; Mealer et al., 2017; Turner, 2014; Tusaie & Dyer, 2004) demonstrating confirmation between the concept analysis and the qualitative data collected for this study. This may reflect the growing interest in the resilience of health professionals in recent years with both professional organisations and employers raising awareness of resilience in recent years. Participants also described the flexibility needed to be resilient and the idea of going with the flow in challenging situations at work, which is consistent with reports in the literature where the importance of positive adaptation is frequently discussed (Brennan, 2017; Cope et al., 2016a; Cope et al., 2016b; Cope et al., 2016c; Craigie et al., 2016; Dyess et al., 2015; Gao et al., 2017; Guo et al., 2017; Lowe, 2013; McAllister, 2013; Shirey, 2012). Participant's descriptions of resilience demonstrated an understanding of the need to possess and develop skills to manage the challenging and unpredictable work environments nurses work in.

7.2.2 Attributes of Resilience

All six key attributes of resilience identified in the concept analysis (Cooper et al., 2020) were touched on during the focus group discussions, showing confirmation across data sources. Social support both at work and in participants' personal lives was identified as an important attribute that enabled them to sustain their resilience and continue in their work. Participants described how their confidence developed with experience and support which links with the attribute of self-efficacy. There was also discussion around self-care activities and work-life balance, with some participants reporting this was something they were able to manage, but others struggled with this. The use of humour was evident within much of the focus group discussions and participants also described how they used humour in their clinical work environments and within their clinical teams. There was conversation around

the need to remain positive and trying to think positively about work, even though it could be a challenging environment, relating to the attribute of optimism. Participants discussed how knowing your limitations was a form of resilience, this linked with the attribute of being realistic. Recognising when they needed to take a step back to gather themselves when stressed, and prioritise and look at what could be achieved on a given shift with their patients, were all part of being realistic.

7.2.3 Resilience and Adversity

There was universal agreement amongst focus group participants that resilience is essential and there was recognition that a lack of resilience could place nurses at risk. This was consistent with the literature where resilience is considered to be vital and a key protective factor that enables nurses to positively adapt to stressors and adversity in the workplace (Cho & Kang, 2017; Hart et al., 2014; Hegney, Rees, et al., 2015; Manzano García & Ayala Calvo, 2012; McAllister & McKinnon, 2009; Mealer et al., 2012a; Tusaie & Dyer, 2004). Focus group participants described a sense of constant pressure at work, which mirrored the literature where the stressful nature of the nursing profession and the clinical environments nurses work in has been acknowledged (Alderson et al., 2015; Craigie et al., 2015; Hegney et al., 2014; Khamisa et al., 2013; Ray et al., 2013).

Focus group participants described independently adopting strategies that helped them to manage workplace stress. This also featured in qualitative studies assessed in the integrative review (Ablett & Jones, 2007; Cameron & Brownie, 2010; Dolan et al., 2012; Hodges et al., 2010; Kornhaber & Wilson, 2011; Marie et al., 2017; Tubbert, 2016; Zander et al., 2013). These strategies included engaging with social supports inside and outside the

workplace, self-care activities, and using humour. The findings of this study further support evidence that nurses independently develop and use strategies to manage adversity. Therefore, the focus of interventions that aim to equip experienced nurses with strategies to maintain their resilience may be ineffective, as the evidence indicates these nurses already have well developed strategies. This approach also ignores the fact that even the most resilient individual can only sustain so much and puts the onus on nurses to cope in any circumstances and ignores the modifiable conditions which could be improved by organisations.

Focus group participants perceived that resilience was needed to counter the adversity experienced in their day to day work. There were similarities in the sources of stress and adversity identified by participants in their clinical work environments and those referred to in the literature including; staff shortages (Koen et al., 2011; McDonald et al., 2013; Zander et al., 2013), skill mix issues (Happell et al., 2013; Zander et al., 2013), exposure to traumatic situations (Mealer et al., 2017; Morrison & Korol, 2014), inter-professional conflict (Lanz & Bruk-Lee, 2017), workplace violence (Hsieh et al., 2016; Koen et al., 2011), patient acuity (Cope et al., 2016a) and death and dying (Lanz & Bruk-Lee, 2017; Mealer et al., 2017; Shimoinaba et al., 2015). As a result of these stressors at work, some focus group participants described experiencing mental and physical exhaustion. This led to difficulties switching off from work, engaging with family, and ultimately affected participants personally and professionally.

The mental and physical toll working as a nurse can have is widely reported in the literature (Alderson et al., 2015; Craigie et al., 2015; Hegney et al., 2014; Khamisa et al., 2013; Zito et

al., 2016). There is evidence that resilience could be a key factor in minimising negative psychological outcomes in nurses (Cusack et al., 2016; Guo et al., 2019; Mealer et al., 2012a; Rushton et al., 2015). In this study, the erosion of supports in the workplace was clearly linked to the increased pressures participants experienced at work. Participants described how these increasing pressures and lack of support could impact negatively on their physical and mental health. This, in turn, had the potential to erode resilience. Although staff retention is frequently cited in the literature as a consequence of high resilience levels (Cooper et al., 2020), the impact of working conditions on nurse resilience has had little exploration to date.

A recent study of American registered nurses found work conditions can influence both nurse resilience and retention (Gensimore et al., 2020). The authors found positive perceptions of hospital management and organisational support improved nurse retention for nurses with high resilience levels (Gensimore et al., 2020), suggesting a more complex relationship exists between nurse resilience and nurse retention. High resilience alone will not make nurses more likely to stay with an organisation. These findings were confirmed in this study, focus group participants described how they had seen other nurses leave and some participants had reduced their hours due to the stressful nature of their work. Participants clearly identified that the levels of stress they were placed under had increased due to reducing resources and increasing patient acuity and complexity, which has been identified globally as an issue for the nursing profession (Cope et al., 2016a; Hart & Warren, 2015; Zito et al., 2016). Finding ways to foster attributes of resilience and improve modifiable work conditions could be key to helping nurses successfully manage adversity in the workplace.

7.3 Resilience as a Complex and Dynamic Process

Focus group participants clearly identified the evolving nature of individual resilience and discussed how resilience developed across the life span, with both personal and professional experience contributing to overall resilience. This was consistent with both the nursing literature and the psychological construct where the origins of research in resilience began. The complexity of resilience relates to the multitude of factors that can affect it and the dynamic process describes how resilience fluctuates (Connor & Davidson, 2003). Participants discussed how resilience varies over time, context, age and different life circumstances (Connor & Davidson, 2003). For example, participant 20 described the contextual impact on resilience - how she felt she could manage anything in her usual clinical speciality but being sent to other wards to work "…felt like having my legs and arms chopped off. You felt so out of your depth". In a familiar work environment, she was highly resilient but in other clinical environments, this was not the case. In this example caring for patients in a different specialisation was the factor which affected the participant's level of resilience. Showing context is key to nurse resilience, when allocating nurses to work outside of their usual speciality strategies and supports to assist in the transition to other clinical areas may be needed. The four subthemes presented below are interlinked and highlight key areas that influence nurse resilience.

7.3.1 Group Resilience

The notion of group resilience featured strongly in the focus groups and is an area that has previously only had brief exploration in the nursing literature (Cleary et al., 2014; Itzhaki et al., 2015). The importance of group resilience highlighted in the qualitative data was in discordance with the majority of research studies and wider literature which has focused on

individual nurse resilience. Cleary et al., (2014) highlighted the lack of research exploring the notion of group resilience in health professionals and the need for research to explore this in the context of mental health nurses. In clinical environments stressful events can be experienced by groups as well as individuals (Itzhaki et al., 2015). Working as a team has been found to help mental health nurses deal with aggressive patients and there is evidence that group resilience could be an important factor that enables mental health nurses to cope with adversity (Cleary et al., 2014; Itzhaki et al., 2015). In the present study, participants described how group resilience could change from shift to shift depending on the individuals in the team. Getting through a shift together and the camaraderie which could exist within teams bolstered participants' resilience and their ability to cope. This helped them get through difficult shifts. Relationships with co-workers and the team nurses worked within could affect resilience. The focus in the literature on individual resilience may be misplaced, as most nurses work within teams and therefore group resilience is an important area that warrants further exploration.

7.3.2 Managers and Nurse Resilience

Gensimore et al., (2020) found nurses with below-average resilience levels who held a positive perception of their unit manager had higher levels of nurse retention. Similarly, an integrative review which examined the role of ICU nurse managers in supporting nurse wellbeing, concluded there was evidence that the behaviours of nurses managers can impact the well-being of nurses and their ability to provide quality care (Adams et al., 2018). In this study, the influence workplace managers could have on resilience and well-being was also raised during the focus groups. Participants described how managers could have both positive and negative influences on resilience and provided confirmation of other study

findings. When participants discussed working with managers who displayed good leadership ability, they felt supported and more resilient. In contrast, when leadership was lacking they felt unsupported and this increased stress levels and eroded resilience.

7.3.3 Education and Resilience

Continuing education and educational resources were also important factors for participants. Quantitative results demonstrated formal educational qualifications were associated with greater resilience but the qualitative data also alluded to the value of ongoing clinical education, an area of expansion from other data sources. In the focus groups, participants described how education time and resources had been reduced at the study hospital, which participants felt could impact both nurse resilience and quality of care. This demonstrated the value of continuing education through in-service education which was not measured in the quantitative data. There is widespread agreement that continuing professional education is essential for nurses (Clark et al., 2015; Gijbels et al., 2010). As a result, there has been a huge investment in continuing professional education (Clark et al., 2015). To date, there is little research exploring the impact of continuing professional education on outcomes for service delivery and patients (Clark et al., 2015; Gijbels et al., 2010). No research has investigated the impact of continuing professional education on nurse resilience.

7.3.4 Job Satisfaction and Resilience

In this study, participants described how they needed job satisfaction to sustain them in their work. This is in contrast (evidence of discordance) to the majority of papers reviewed in the concept analysis and integrative review which considered job satisfaction to be a

consequence of resilience rather than a condition or attribute needed to foster resilience (Matos et al., 2010; Zheng et al., 2017; Öksüz et al., 2019). Establishing the true relationship between resilience and job satisfaction would help to inform interventions which aim to promote nurse resilience. Participants felt job satisfaction was crucial to sustaining resilience and enabling them to continue in their work. This confirmed findings of three qualitative studies that identified job satisfaction as a potential contributor to resilience where satisfaction in providing skilled holistic care and enjoyment of work were considered to bolster resilience (Ablett & Jones, 2007; Cameron & Brownie, 2010; Dolan et al., 2012). Participants in this study described higher levels of job satisfaction and enjoyment in their work when recalling times they felt the organisation upheld the values. Whether job satisfaction is a cause or consequence of resilience is unclear, however from this study it does seem that having strongly articulated organisational values which are "lived" by the organisation might contribute to resilience, just as not "living" these values may equally undermine nurse resilience.

7.4 Measurable Levels of Individual Resilience

The CD-RISC (Connor & Davidson, 2003) provided a quantitative measure of resilience. Although the CD-RISC is a validated and reliable tool that is used to measure individual resilience and has been utilised in other nursing samples, it is important to note the scale only provides an indicator of resilience at one point in time. The Cronbach's alpha of α 0.82 in the study sample indicated a high level of internal reliability in the CD-RISC scale, and while marginally lower, was similar to the internal reliability reported in other Australian studies (Table 7). To put into context the mean resilience level of the study sample, comparisons with other studies also conducted prior to the COVID-19 pandemic using the

25-item version of the CD-RISC in Australia have been considered. Four studies in Australian nurses and one study that measured resilience in the Australian General population have been identified (Table 7).

Table 7

Mean CD-RISC scores reported in other Australian samples

Study	Population	Mean CD-RISC	Cronbach's α
Gillespie et al., (2009) The influence of personal characteristics on the resilience of operating room nurses: A predictor study	Theatre nurses	75.9 (19-99) SD11	α 0.90
Hegney et al., (2015)[5] Work and well-being of nurses in Queensland: Does rurality make a difference?	Nurses working in public, private, acute hospitals, community care, and aged care	Major cities 70.4 SD 12.6 Rural 69.1 SD 13.0 Remote 69.2 SD 13.5	Not reported
Hegney et al., (2015) The contribution of individual psychological resilience in determining the professional quality of life in Australian nurses	Nurses working in public, private, and aged care sectors	Public sector 70.1 (23-96) SD 12.2 Private sector 69.6 (0-96) SD 13.3 Aged care 70.2 (13-96) SD 13.2 Other sector 70.4 (40-95) SD 12.7	α 0.94
Liu et al., (2015)[5,6] The Connor-Davidson resilience scale: Establishing invariance between gender and across the lifespan in a large community-based study	Australian general population	28-32 years old 71.5 SD 12.5 48-52 years old 71.4 SD 13.4 68-72 years old 73.4 SD 13.6	Not reported

[5] Ranges were not reported

[6] Authors used scale incorrectly, scored items from 1-5 instead of 0-4 mean scores and standard deviations presented in the table are the corrected values listed in the CD-RISC manual not those in the journal article.

Study	Population	Mean CD-RISC	Cronbach's α
Guo et al., (2019)[5] The effects of resilience and turnover intentions in nurses' burnout: Findings from a comparative cross-sectional study	Australian nurses working in a major public health service (CD-RISC scores for Chinese nurses not included in this table)	58.22 SD 16.06	α 0.91

The mean resilience level in the study sample of 73.1 is very similar to most other published studies and based on the available evidence, is typical of the mean resilience levels expected in Australian samples, both in nurses and in the general population. The standard deviation from the sample mean was 11.1 demonstrating similar levels of resilience within the sample and clustering around the Australian mean CD-RISC scores reported in other studies (Table 7). Therefore, at the time the cross-sectional survey was conducted, the mean resilience levels of participants working at the study site were no higher nor lower than those reported in most other Australian nursing samples, providing confirmation across data sources. This suggests that the basis of an organisation's values, whether of a faith-based or secular origin, private or public provider, or across jurisdictions does not significantly influence mean nurse resilience levels.

However, it is also important to consider the range of participants' resilience scores which were between 37 and 100. This shows that although the sample mean was similar to other reported means there was evidence of very high and very low resilience levels within the study sample. This was consistent with reported ranges in other Australian studies of nurse resilience (Gillespie et al., 2009; Hegney et al., 2015) and highlights the importance of looking beyond mean scores when analysing resilience levels. Focusing only on mean results

can obscure important results about individuals with low resilience scores who may be at risk. The reasons for these low resilience levels within the sample are unknown, because the CD-RISC does not analyse resilience at this level, and may be due to factors both in and outside the workplace. Regardless of cause, individuals with low levels of resilience could be at greater risk of negative psychological outcomes as a result of their work (Guo et al., 2019; Hegney, Rees, et al., 2015; Mealer et al., 2012a) and should be a priority for identification and assistance. This study design did not allow for individual CD-RISC results to be scrutinised but further work to ascertain the causes of high and low levels of nurse resilience is needed to test the value of interventions aimed at optimising resilience. Tools like the CD-RISC could assist healthcare organisations to identify individuals with low resilience levels so additional support and assistance could be offered. The CD-RISC could also be used to identify individuals with high resilience levels so that research could be conducted to try and establish what conditions or factors contribute to high resilience. This is particularly relevant in the context of the ongoing COVID-19 pandemic. Workplace conditions have changed, with nurses and other health professionals facing unprecedented adversity (Arnetz et al., 2020; Maben & Bridges, 2020).

7.4.1 Age, Experience, and Resilience Levels

By obtaining a measurable level of resilience it was possible to test which personal characteristics were associated with resilience and to make comparisons with other cross-sectional studies. In the quantitative component of the study, no association was found between participants' resilience levels and the variables of age, total years of experience as a nurse (independent of age), and total number of years working at the study hospital. There have been mixed results in other studies, indicative of discordance across data

sources, with a number finding no association or significant relationship between resilience, age, and experience (Gillespie et al., 2007; Harris et al., 2020; Hsieh et al., 2016; Pannell et al., 2016; Rushton et al., 2015; Tabakakis et al., 2019). Other studies have found a positive association between resilience levels, age and years of experience (Ang et al., 2018; Gillespie et al., 2009; Kim et al., 2019; Mealer et al., 2017; Wei & Taormina, 2014; Zheng et al., 2017). Conversely, Wei & Taormina (2014) found resilience declined with increasing age in their sample.

These contradictory results are likely due to the difficulties in conducting cross-sectional surveys in health professionals, which are often associated with small sample sizes and poor response rates (Braithwaite et al., 2003; Cooper & Brown, 2017; Curtis & Redmond, 2009; Ford & Bammer, 2009). Unrepresentative and inadequate sample sizes may be contributing to the mixed and contradictory findings in the literature, with some studies finding an association between age, experience, and resilience levels and others finding no association. These results may also be due to the variations between the cultural contexts in which the studies were conducted and differences between specialities. Ultimately, due to the issues with the research reported to date, the association between resilience, age and experience remains unclear, and whilst a significant sample was recruited, this study added no further clarity to the issue. Further cross-sectional studies are needed, which employ strategies to maximise response rates with clear reporting on the response rate and required sample size.

Further discordance was evident between the quantitative and qualitative data sources where the lack of an association between experience and resilience level in our study was in

contrast to the perception of focus group participants who felt resilience and the ability to cope with the challenges in nursing increased with experience. The belief that resilience develops with experience was also expressed by participants in qualitative studies exploring resilience in paediatric oncology nurses (Zander et al., 2013), community mental health nurses (Marie et al., 2017), and burns nurses (Kornhaber & Wilson, 2011). These differences in the qualitative data highlight that quantitative measurements alone do not provide a complete picture of resilience and this is an area for further research.

7.4.2 Registration, Employment Status, and Resilience Levels

No significant difference was found between participant resilience levels based on clinical area, registration held, or employment status which confirmed other research study findings. Rushton et al., (2015) found similar resilience levels in nurses across different clinical areas categorised as adult critical care, paediatric critical care, and medical/surgical, however, the study failed to state how the sample size was calculated. A more rigorous study of psychiatric nurses in Singapore also found no significant differences in participants' resilience scores between departments (Zheng et al., 2017). The authors also tested the association between resilience scores and employment status and found no significant difference. No studies reviewed for the integrative review reported comparisons in resilience levels based on type of registration held. This study confirmed previously reported findings that no significant difference in resilience levels based on either type of registration held or between part-time and full-time employees, suggesting that employment status and registration type are not indicators to use when trying to identify nurses with lower resilience levels for targeted interventions.

7.4.3 Educational Attainment and Resilience Levels

Confirmation between the literature and quantitative results was evident in relation to highest educational level attained, with participants who held a Bachelor's Degree in nursing having significantly higher resilience levels compared to participants whose highest qualification was hospital training. A possible explanation for this difference is that those with higher levels of self-efficacy, a key attribute of resilience, are more likely to engage in obtaining higher qualifications and are more likely to persevere and succeed in the activities they perform (Bandura, 1978). It could be that participants who had chosen not to undertake further education after being hospital trained had lower levels of self-efficacy whereas, participants who were hospital trained and had high self-efficacy levels went onto obtain additional qualifications. This was supported in subscale analysis based on highest educational level attained, with postgraduate diploma qualified nurses having significantly higher Factor 1 subscale scores than hospital trained nurses. Factor 1 measures the notion of personal competence, high standards, and tenacity which relate to the concept of self-efficacy. This confirms the findings of Guo et al., (2017) where both a high level of self-efficacy and educational attainment predicted higher levels of nurse resilience.

Confirming the findings of this study, higher resilience levels have been related to higher qualifications and educational level in a number of studies (Ang et al., 2018; Foster, Shochet, et al., 2018; Guo et al., 2017; Hsieh et al., 2017; Kutluturkan et al., 2016; Wei & Taormina, 2014; Zheng et al., 2017). However, other studies found educational attainment or highest qualification held did not significantly contribute to resilience (Gillespie et al., 2009; Gillespie et al., 2007a; Hsieh et al., 2016; Tabakakis et al., 2019). Issues with small sample sizes (Foster, Shochet, et al., 2018; Kutluturkan et al., 2016), low response rates (Ang et al.,

2018), and a lack of information on the response rate and required sample size (Ang et al., 2018; Hsieh et al., 2017; Hsieh et al., 2016; Kutluturkan et al., 2016; Tabakakis et al., 2019; Wei & Taormina, 2014) were common. Although there seems to be stronger evidence of a positive association between resilience levels and educational attainment than with other variables, the weaknesses in the studies reported and issues with the generalisability of results based on one speciality mean these findings must be interpreted with caution. More studies with high response rates across a diverse range of specialities which report if the required sample size was met (like this study) are needed to confirm higher educational levels are consistently associated with higher resilience levels.

7.5 The Role of Organisational Values

As a previously uninvestigated area, this study's findings about the role of organisational values expand on the current understanding of nurse resilience outlined in the concept analysis and the integrative review. The organisational values were well known with 84% (n=328) of participants correctly identifying the five core values in the cross-sectional survey. The quantitative data revealed participants who strongly agreed or disagreed with the values and their importance had the highest resilience levels, suggesting holding a strong opinion could be indicative of resilience. There were no significant differences found in resilience levels based on the number of the organisational values correctly identified. Therefore, it seems the broad notion of the organisational values and concurring with them appears to be more important than a precise knowledge of each value.

As previously noted, values are not unique to faith-based organisations with most large organisations espousing a set of values and accompanying vision or mission statements

(Hyde & Williamson, 2000). The difference lies in where the inspiration or basis of these values comes from. Given that values are commonplace there is the potential for values to influence the resilience of employees regardless of whether these values originate from a secular or faith-base. Value congruence determines the impact of organisational values on individual employees (Edwards & Cable, 2009; Fiabane et al., 2013; Hyde & Williamson, 2000; Ren & Hamann, 2015; Verplanken, 2004). Higher levels of resilience were associated with both value congruence and incongruence. The finding that strong agreement with the values was associated with higher resilience levels was similar to other studies which have reported positive results associated with value congruence, such as higher levels of job satisfaction (Hyde & Williamson, 2000; Ren & Hamann, 2015; Verplanken, 2004) and psychological well-being (Fiabane et al., 2013; Graham et al., 2016; Leiter et al., 2009). However, the finding that the small number of participants who strongly disagreed (n=15) also had higher resilience levels differs from other studies and was unexpected.

Subscale analysis indicated participants at extremes on the Likert scale (strongly agree and strongly disagree) for agreement with and importance of the organisational values had significantly higher Factor 1 (the notion of personal competence, high standards, and tenacity) and Factor 5 (spirituality) scores. It is not possible to determine why participants at extremes had higher resilience levels but possible explanations could include those with strong agreement may have still felt the values were upheld in their individual ward or department and participants who strongly disagreed may have had their own set of values which differed to those of the organisation and were a source of individual resilience. Although the resilience levels in the study sample were similar to other Australian nursing

samples (Table 7), resilience levels may have been higher if the study had been conducted at a time when participants felt the organisation was being true to its values.

Apart from organisational values, employees hold their own values and beliefs which can affect their resilience and influence their value congruence. Although there is some acknowledgement that personal spirituality and religion could be potential predictors of resilience in nurses and other health professionals (Delgado et al., 2017; Jackson et al., 2007; McAllister & McKinnon, 2009; Mealer et al., 2014; Zheng et al., 2017) personal faith does not feature strongly in the literature. Similarly, personal faith did not feature strongly in the focus group discussions with only one participant expressing how they felt their personal faith helped them with work. It was particularly interesting that personal faith did not feature strongly in a faith-based (Catholic) workplace where it might be expected to be more prevalent, in comparison to workplaces that do not have an association with a particular religion. Although the organisation is faith-based there is no requirement for its employees to be of the Catholic faith, therefore the limited discussion of personal faith was most likely representative of the diverse background of nurses employed at the hospital and the secular nature of Australian society.

Participants' descriptions of the values not being upheld were clearly linked to perceived failures by the organisation to provide optimal working conditions. The reduction of nursing hours, the loss of protected education time, and other supports at the hospital were detrimental to nurse resilience and participants felt these changes contradicted the organisational values. Clearly, organisational values matter and are an element of workplace conditions that can affect nurse resilience and require further investigation. As the majority

of organisations operate with a set of values, what these are and the level to which organisations abide by their values could affect employees in all healthcare settings. Simply having values is not enough, nurses need to agree with the values and feel they are "lived" within the organisation. When this does not occur this negatively impacts on nurse resilience and morale.

7.6 Strengths

Through conducting the concept analysis nurse resilience was systematically defined. The absence of a clear definition of resilience in nurses had previously been identified as a deficiency in the nursing literature (Aburn et al., 2016). The integrative review critically appraised research that has investigated nurse resilience and identified areas for further research. The mixed methods design which integrated the concept analysis, research literature, quantitative and qualitative data enabled a more complete picture of nurse resilience to be obtained than would have been achieved with a single method. Drawing on multiple sources facilitated a detailed exploration of nurse resilience and the influence of organisational values, ultimately leading to a clearer definition and direction for future research. The majority of research examining nurse resilience has been based on a single method so does not provide the same level of insight as this mixed method study.

The high response rate in the quantitative phase of the study and the similarity of the basic characteristics of participants and the larger population of nurses at the hospital suggests that the sample obtained is representative of the study site nursing population. Available characteristics of the Australian nursing population on gender and type of registration held were also similar to the study sample. The broader inclusion criteria of all nurses working at

the study hospital rather than focusing on one speciality is another strength of the study, as this enabled comparison between specialities and potentially more generalisable findings. Resilience was measured using a validated scale which has been used and reported in nursing samples, allowing for comparison of results with other studies.

Qualitative data collection via focus groups facilitated a detailed exploration of resilience from the perspective of nurses and provided insights that could not be obtained through quantitative methods alone. The focus groups allowed interaction between participants and the use of an independent group facilitator helped reduce researcher bias. Member checking ensured that the interpretation of the qualitative data collected was a true reflection of participant's experiences.

7.7 Limitations

The study was conducted at a single site with a specific faith-based values approach which limits the generalisability of the findings. Data were not collected on respondents' personal beliefs or faith which, while not an aim of the study could have enabled exploration of how the organisation's values interacted with individual values.

Although the CD-RISC is one of the best measures of resilience it is not without its limitations. From a cultural perspective, the CD-RISC was developed in the USA therefore the scale is skewed to an American cultural perception of resilience (Windle et al., 2011; Wu et al., 2017; Xie et al., 2016). This is evident in the higher scores seen in American samples compared to other countries who may value different personal attributes or characteristics as features of resilience (Xie et al., 2016). This is particularly an issue when the CD-RISC is

applied in countries with vastly different values and cultures from where the tool was developed. For example, in the CD-RISC Manual (Davidson & Connor, 2017) scores reported for general population samples vary widely with American studies mean scores ranging from 76.1-83.0, whereas Chinese studies range from 60.0-71.0. Australia as a western country is culturally similar to America and shares a similar understanding of the concept of resilience. Australian samples have lower mean resilience levels in comparison to American samples. The authors of CD-RISC advised that comparisons should only be made between studies conducted in the same country, a broad acknowledgement of the importance of context when considering resilience (J. R. T. Connor, personal communication, November 15, 2017).

As previously mentioned the CD-RISC only measures resilience at one point in time and resilience levels are not fixed. The nature of a cross-sectional survey and the CD-RISC means that participants' resilience levels were only captured at one point in time. In contrast, a longitudinal study would capture resilience levels across time and enable fluctuations in resilience to be detected. The study was conducted at a time of organisational change and consequences at the study site so the CD-RISC scores may reflect these issues participants reported during the focus groups.

It is also important to recognise the weakness of data collection via focus groups, where participants self-select and individuals with a particular view or grievance, which may not reflect the larger population, may be more likely to volunteer (Smithson, 2000). During focus groups, there is also the risk of dominant voices leading the discussion and preventing others from expressing their views (Leung & Savithiri, 2009). Individual interviews might have allowed each participant to express their views however, through losing the

interactions and discussions between participants, individual interviews rarely result in the same depth of dialogue as achieved in focus groups (Smithson, 2000).

7.8 Recommendations

7.8.1 For Practice

It is important to acknowledge that nursing is an inherently stressful profession and many of the pressures nurses face cannot be removed such as exposure to trauma, death and dying, and increasing patient acuity. Since completing this study, the context of a global pandemic has further compounded the pressures faced by nurses. However, there are areas in which improvements can be made on an organisational level which could ensure that unnecessary additional stress is avoided. These recommendations for practice are drawn from the data collected for the study and the wider nursing literature examined in the concept analysis and integrative review. Organisations should:

- Consider developing, implementing and operating with a set of employee-adopted values,
- Actively demonstrate organisational values at all levels of the organisation,
- Assess the alignment of potential employee's personal values with the organisational values during the recruitment process,
- Encourage employees to reflect upon the organisational values and their alignment with their personal values,
- Promote group resilience through protected education time, regular team meetings, time to socialise and group rewards,
- Facilitate professional development opportunities,

- Provide leadership training for managers,
- Foster positive and respectful inter-professional relationships,
- Provide adequate resources and supports in the workplace,
- Facilitate work-life balance for nursing staff with individualised and flexible rosters,
- Identify and offer assistance to nurses with low resilience levels,
- Develop targeted interventions which require action by individuals and organisations.

Professional organisations should promote nurse resilience by:

- Campaigning for optimal working conditions,
- Collaborating with other professional organisations to foster positive and respectful inter-professional relationships,
- Offering continuing professional education.

7.8.1 For Individuals

There has been a predominant focus on the individual in research, practice and policy regarding nurse resilience. The concept analysis and integrative review presented in Chapters Two and Three highlighted the weak evidence base that exists for interventions at an individual level. Nurses' descriptions of how they maintain their resilience highlight that a one-size fits all approach to resilience is unlikely to be effective and that interventions at an individual level fail to address the work conditions that erode nurse resilience. While there is currently limited evidence, it is likely that there are strategies that may help individuals to maintain their resilience and well-being including:

- Engaging in self-care activities,

- Fostering positive and respectful inter and intra professional relationships,
- Finding an acceptable work-life balance,
- Drawing on available supports.

7.8.3 For Research

There are a number of areas where further research is needed to fully examine what factors affect nurse resilience and what can be done to foster and maintain resilience. An issue with research to date is the focus on the individual and the steps nurses can take to improve or maintain their resilience. Whilst the actions an individual can take are important, this approach ignores the larger picture of what affects resilience and fails to recognise the fact that even the most resilient person can only sustain so much before their resilience is diminished and well-being is adversely affected. Based on the findings of this study the following recommendations for future research are made in relation to four key areas, organisations, group resilience, individuals and the consequences of the COVID-19 pandemic. Research that focuses on organisations including:

- Investigation of the impact of organisational values in other settings on nurse resilience,
- Development of a measure of compliance with organisational values that can be used by hospital executives and senior managers. Data gathered from an exercise that measures how well the organisation complies with its own values should be used to inform interventions to alter aspects of the organisation or it's processes that don't align with the espoused values,
- Establish the relationship between work environment and workplace conditions with resilience,

- Determine the relationship between work conditions, resilience and nurse workforce retention,
- Investigation of what organisations can do to promote nurse resilience,
- Develop and evaluate interventions which account for internal (self-care, coping skills) and external factors (staffing levels, skill-mix, rostering resources) that affect resilience where both nurses and organisations actively participate,
- Explore how managers can foster nurse resilience through strong leadership,
- Investigation of the consequences of high and low levels of nurse resilience on patient care,
- Investigation of the consequences of high and low levels of nurse resilience on organisations and healthcare systems.

Research that investigates group resilience to:

- Develop a measure for group resilience in nurses,
- Determine the factors which affect group resilience,
- Find ways to foster and maintain group resilience,
- Investigate the impact of group resilience on the well-being of team members.

Research that investigates individual factors to:

- Explore how inexperienced nurses develop strategies to cope with workplace stress and maintain their resilience,
- Establish if job satisfaction contributes to resilience or is a consequence of possessing a high level of resilience.

Research to assess the consequences of the pandemic:

- Investigate the short-term impacts of the COVID-19 pandemic on nurse resilience,
- Investigate the long-term impacts of the COVID-19 pandemic on nurse resilience.

7.9 Conclusion

This study has a number of original findings that are worthy of consideration. The concept analysis represents the first attempt to address the issues with defining nurse resilience and provides the basis for a definition that highlights the emphasis of research to date. Revisiting the working definition based on the findings of this study demonstrates the evolving nature of concepts and how future research shapes the understanding of a concept. The revision of the definition arrived at through the concept analysis emphasised the role of both individuals and organisations need to be considered in sustaining nurse resilience. The opportunity for concept analyses to identify gaps in the literature through their broad approach and to inform research could be beneficial to a wide range of healthcare concepts.

This is the first study to test for an association between nurses' resilience levels and type of registration held. No significant differences were found for resilience levels based on registration held, suggesting type of registration is not an indicator which can assist in identifying nurses with low resilience levels. Demonstrating that steps to monitor, foster and maintain resilience need to be considered for all nurses. This is also one of the few studies which exposes the notion of group resilience, a crucial area that warrants further exploration. The importance of the team that nurses work within and the potential for resilience to be either diminished or bolstered by the colleagues present on a given shift was highlighted in the qualitative findings. As nurses predominately work in teams, how the team nurses work within could impact resilience at both an individual and group level requires further investigation considering intra and inter professional relationships.

This study is unique in its focus on how the values of an organisation can impact nurse resilience. This is an important move away from the focus on individual factors that influence resilience that largely ignores the responsibility organisations have in maintaining and sustaining nurse resilience. It is vital that more research is conducted, like this study, to identify how organisations and workplace conditions influence nurse resilience. The focus on the individual seen in the exploration of the concept of nurse resilience was mirrored in the research that has investigated nurse resilience. The integrative review revealed that external factors which could affect nurse resilience are under-researched. Little is known about the consequences of high and low levels of nurse resilience for patient care, organisations, and healthcare systems. The current knowledge deficit means complete and effective interventions cannot be developed. The integrative review highlights the need for more research that investigates the impact of work environment and conditions on nurse resilience.

Given the complexity of resilience, both the actions organisations and individual nurses can take to promote and sustain resilience are crucial to achieve optimal outcomes for organisations, nurses, and patients. Organisational values can affect nurse resilience; therefore, organisations should consider developing, implementing, and operating with a set of employee-adopted values which are demonstrably upheld at every level within the organisation. Alongside optimising workplace conditions and having shared values, individual nurses need to be equipped with the skills to help maintain their resilience in areas that are within their control. This includes the use of self-care interventions which have been a focus in the literature. If both organisations and individual nurses take action

and assume a level of responsibility more complete interventions to sustain and maintain nurse resilience can be developed and evaluated.

References

Abdollahi, A., Abu Talib, M., Yaacob, S. N., & Ismail, Z. (2014). Hardiness as a mediator between perceived stress and happiness in nurses. *Journal of Psychiatric and Mental Health Nursing*, *21*(9), 789-796. https://doi.org/10.1111/jpm.12142

Ablett, J., R., & Jones, R., S., P. (2007). Resilience and well-being in palliative care staff: A qualitative study of hospice nurses' experience of work. *Psycho-Oncology*, *16*(8), 733-740. https://doi.org/10.1002/pon.1130

Aburn, G., Gott, M., & Hoare, K. (2016). What is resilience? An integrative review of the empirical literature. *Journal of Advanced Nursing*, *72*(5), 980-1000. https://doi.org/10.1111/jan.12888

Adams, A. M. N., Chamberlain, D., & Giles, T. M. (2018). The perceived and experienced role of the nurse unit manager in supporting the wellbeing of intensive care unit nurses: An integrativeliterature review. *Australian Critical Care*. https://doi.org/10.1016/j.aucc.2018.06.003

Afsar, B., Cheema, S., & Bin Saeed, B. (2018). Do nurses display innovative work behavior when their values match with hospitals' values? *European Journal of Innovation Management*, *21*(1), 157-171. https://doi.org/10.1108/EJIM-01-2017-0007

Agaibi, C. E., & Wilson, J. P. (2005). Trauma, PTSD, and resilience: A review of the literature. *Trauma, Violence, & Abuse*, *6*(3), 195-216. https://doi.org/10.1177/1524838005277438

Aiken, L. H., Sloane, D. M., Barnes, H., Cimiotti, J. P., Jarrín, O. F., & McHugh, M. D. (2018). Nurses' and patients' appraisals show patient safety in hospitals remains a concern. *Health Affairs*, *37*(11), 1744-1751. https://doi.org/10.1377/hlthaff.2018.0711

Alderson, M., Parent-Rocheleau, X., & Mishara, B. (2015). Critical review on suicide among nurses. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*, *36*(2), 91-101. https://doi.org/10.1027/0227-5910/a000305

Ali, Z., & Bhaskar, S. (2016). Basic statistical tools in research and data analysis. *Indian Journal of Anesthesia*, *60*(9), 662-669. https://doi.org/10.4103/0019-5049.190623

Allen, P., Bennett, K., & Heritage, B. (2014). *SPSS statistics Version 22: A practical guide* (3rd ed.). Cengage Learning.

Anderson, K. M., Renner, L. M., & Danis, F. S. (2012). Recovery: Resilience and growth in the aftermath of domestic violence. *Violence Against Women*, *18*(11), 1279-1299. https://doi.org/10.1177/1077801212470543

Ang, S. Y., Uthaman, T., Ayre, T. C., Mordiffi, S. Z., Ang, E., & Lopez, V. (2018). Association between demographics and resilience - a cross-sectional study among nurses in Singapore. *International Nursing Review*, *65*(3), 459-466. https://doi.org/10.1111/inr.12441

Arnetz, J. E., Goetz, C. M., Arnetz, B. B., & Arble, E. (2020). Nurse reports of stressful situations during the COVID-19 pandemic: Qualitative analysis of survey responses. *International Journal of Environmental Research and Public Health*, *17*(21), 8126. https://doi.org/10.3390/ijerph17218126

Åstedt-Kurki, P., & Isola, A. (2001). Humour between nurse and patient, and among staff: Analysis of nurses' diaries. *Journal of Advanced Nursing*, *35*(3), 452-458. https://doi.org/10.1046/j.1365-2648.2001.01860.x

Atkinson, P. A., Martin, C. R., & Rankin, J. (2009). Resilience revisited. *Journal of Psychiatric and Mental Health Nursing*, *16*(2), 137-145. https://doi.org/10.1111/j.1365-2850.2008.01341.x

Australian Institute of Health and Welfare. (2016). Nursing and midwidery workforce 2015. https://www.aihw.gov.au/reports/workforce/nursing-and-midwifery-workforce-2015/contents/who-are-nurses-and-midwives

Babanataj, R., Mazdarani, S., Hesamzadeh, A., Gorji, M. H., & Cherati, J. Y. (2019). Resilience training: Effects on occupational stress and resilience of critical care nurses. *International Journal of Nursing Practice*, *25*(1), e12697. https://doi.org/10.1111/ijn.12697

Bakker, A. B., & Schaufeli, W. B. (2008). Positive organizational behavior: Engaged employees in flourishing organizations. *Journal of Organizational Behavior*, *29*(2), 147-154. https://doi.org/10.1002/job.515

Baldwin, M. (2008). Concept analysis as a method of inquiry. *Nurse Researcher*, *15*(2), 49-58. https://doi.org/10.7748/nr2008.01.15.2.49.c6329

Bandura, A. (1978). Self- efficacy: Toward a unifying theory of behavioral change. *Advances in Behaviour Research and Therapy*, *1*(4), 139-161. https://doi.org/10.1016/0146-6402(78)90002-4

Bardoel, E. A., Pettit, T. M., De Cieri, H., & McMillan, L. (2014). Employee resilience: An emerging challenge for HRM. *Asia Pacific Journal of Human Resources*, *52*(3), 279-297. https://doi.org/10.1111/1744-7941.12033

Bartone, P. T. (1999). Hardiness protects against war-related stress in army reserve forces. *Consulting Psychology Journal: Practice and Research*, *51*(2), 72-82. https://doi.org/10.1037/1061-4087.51.2.72

Bielefeld, W., & Cleveland, W. S. (2013). Defining faith-based organizations and understanding them through research. *Nonprofit and Voluntary Sector Quarterly*, *42*(3), 442-467. https://doi.org/10.1177/0899764013484090

Boddy, C. (2014). Corporate psychopaths, conflict, employee affective well-being and counterproductive work behaviour. *Journal of Business Ethics*, *121*(1), 107-121. https://doi.org/10.1007/s10551-013-1688-0

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, *59*(1), 20-28. https://doi.org/10.1037/0003-066X.59.1.20

Boyle, D. A. (2011). Countering compassion fatigue: A requisite nursing agenda. *Online Journal of Issues in Nursing*, *16*(1), 2. https://doi.org/10.3912/OJIN.Vol16No01Man02

Braithwaite, D., Emery, J., de Lusignan, S., & Sutton, S. (2003). Using the Internet to conduct surveys of health professionals: A valid alternative? *Family Practice*, *20*, 545-551. https://doi.org/10.1093/fampra/cmg509

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Brennan, E. (2017). Towards resilience and wellbeing in nurses. *British Journal of Nursing*, *26*(1), 43. https://doi.org/10.12968/bjon.2017.26.1.43

Brown, J., Francis, K., Cusack, L., & Hegney, D. (2016). Comprehensive systematic review of appropriateness and effectiveness of intervention programs that aim to build and maintain resilience in nurses and midwives. In Y. Mak, V. Chiang, & O. Fung (Eds.), *Enhancing patient safety through quality nursing education - the challenges and*

solutions from a multi-disciplinary perspective (pp. 70-89). The Hong Kong Society for Nursing Education Limited.

Burns, N., & Grove, S. K. (2011). *Understanding nursing research : Building an evidence-based practice* (5th ed.). Elsevier/Saunders.

Cameron, F., & Brownie, S. (2010). Enhancing resilience in registered aged care nurses. *Australasian Journal on Ageing*, *29*(2), 66-71. https://doi.org/10.1111/j.1741-6612.2009.00416.x

Campbell-Sills, L., & Stein, M. B. (2007). Psychometric analysis and refinement of the Connor–Davidson Resilience Scale (CD-RISC): Validation of a 10-item measure of resilience. *Journal of Traumatic Stress*, *20*(6), 1019-1028. https://doi.org/10.1002/jts.20271

Carpenter, G. S. J., Carpenter, T. P., Kimbrel, N. A., Flynn, E. J., Pennington, M. L., Cammarata, C., . . . Gulliver, S. B. (2015). Social support, stress, and suicidal ideation in professional firefighters. *American Journal of Health Behavior*, *39*(2), 191. https://doi.org/10.5993/AJHB.39.2.5

Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review*, *30*(7), 879-889. https://doi.org/10.1016/j.cpr.2010.01.006

Casali, G. L., & Day, G. E. (2010). Treating an unhealthy organisational culture: The implications of the Bundaberg Hospital Inquiry for managerial ethical decision making. *Australian Health Review*, *34*(1), 73-79. https://doi.org/10.1071/AH09543

Charney, D. (2004). Psychobiological mechanisms of resilience and vulnerability: Implications for successful adaptation to extreme stress. *American Journal of Psychology*, *161*, 195-216. https://doi.org/10.1176/appi.ajp.161.2.195

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods*, *4*, 62-83. https://doi.org/10.1177/109442810141004

Chesak, S., Bhagra, A., Schroeder, D., Foy, D., Cutshall, S., & Sood, A. (2015). Enhancing resilience among new nurses: Feasibility and efficacy of a pilot intervention. *The Ochsner Journal*, *15*(1), 38-44.

Chiang-Hanisko, L., Newman, D., Dyess, S., Piyakong, D., & Liehr, P. (2016). Guidance for using mixed methods design in nursing practice research. *Applied Nursing Research*, *31*, 1-5. https://doi.org/10.1016/j.apnr.2015.12.006

Chinn, P. L., & Kramer, M. K. (1995). *Theory and nursing : A systematic approach*. Mosby.

Cho, G. J., & Kang, J. (2017). Type D personality and post-traumatic stress disorder symptoms among intensive care unit nurses: The mediating effect of resilience. *PLoS ONE*, *12*(4), e0175067. https://doi.org/10.1371/journal.pone.0175067

Chughtai, A., Byrne, M., & Flood, B. (2015). Linking ethical leadership to employee well-being: The role of trust in supervisor. *Journal of Business Ethics*, *128*(3), 653-663. https://doi.org/10.1007/s10551-014-2126-7

Chung, S. M., & Fitzsimons, V. (2013). Knowing Generation Y: A new generation of nurses in practice. *British Journal of Nursing*, *22*(20), 1173-1179. https://doi.org/10.12968/bjon.2013.22.20.1173

Cicchetti, D., Rogosch, F. A., Lynch, M., & Holt, K. D. (1993). Resilience in maltreated children: Processes leading to adaptive outcome. *Development and Psychopathology*, *5*(4), 629-647. https://doi.org/10.1017/S0954579400006209

Clark, E., Draper, J., & Rogers, J. (2015). Illuminating the process: Enhancing the impact of continuing professional education on practice. *Nurse Education Today*, *35*(2), 388-394. https://doi.org/10.1016/j.nedt.2014.10.014

Cleary, M., Jackson, D., & Hungerford, C. L. (2014). Mental health nursing in Australia: Resilience as a means of sustaining the specialty. *Issues in Mental Health Nursing*, *35*(1), 33-40. https://doi.org/10.3109/01612840.2013.836261

Cline, S. (2015). Nurse leader resilience: Career defining moments. *Nursing Administration Quarterly*, *39*(2), 117-122. https://doi.org/10.1097/NAQ.0000000000000087

Cobb, S. (1976). Social support as a moderator of life stress. *Psychosomatic Medicine*, *38*(5), 300-314. https://doi.org/10.1097/00006842-197609000-00003

Cohen, E., Dekel, R., & Solomon, Z. (2002). Long-term adjustment and the role of attachment among Holocaust child survivors. *Personality and Individual Differences*, *33*(2), 299-310. https://doi.org/10.1016/S0191-8869(01)00156-8

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, *18*(2), 76-82. https://doi.org/10.1002/da.10113

Cook-Cottone, C., & Guyker, W. (2018). The development and validation of the Mindful Self-Care Scale (MSCS): An assessment of practices that support positive embodiment. *Mindfulness*, *9*(1), 161-175. https://doi.org/10.1007/s12671-017-0759-1

Cooper, A. L., & Brown, J. A. (2017). Maximising nurses' and midwives' response rates to surveys. *Nurse Researcher*, *25*(3), 31-35. https://doi.org/10.7748/nr.2017.e1494.

Cooper, A. L., Brown, J. A., & Leslie, G. D. (2021). Nurse resilience for clinical practice: An integrative review. *Journal of Advanced Nursing*, *77*(6), 2623-2640. https://doi.org/10.1111/jan.14763

Cooper, A. L., Brown, J. A., & Leslie, G. D. (2021). The impact of organisational values on nurse resilience: A mixed methods study. *Journal of Nursing Management*. doi.org/10.1111/jonm.13338

Cooper, A. L., Brown, J. A., Rees, C. S., & Leslie, G. D. (2020). Nurse resilience: A concept analysis. *International Journal of Mental Health Nursing*, *29*(4), 553-575. https://doi.org/10.1111/inm.12721

Cope, V., Jones, B., & Hendricks, J. (2016a). Resilience as resistance to the new managerialism: Portraits that reframe nursing through quotes from the field. *Journal of Nursing Management*, *24*(1), 115-122. https://doi.org/10.1111/jonm.12279

Cope, V., Jones, B., & Hendricks, J. (2016b). Why nurses chose to remain in the workforce: Portraits of resilience. *Collegian*, *23*(1), 87-95. https://doi.org/10.1016/j.colegn.2014.12.001

Cope, V. C., Jones, B., & Hendricks, J. (2016c). Residential aged care nurses: Portraits of resilience. *Contemporary Nurse*, *52*(6), 736-752. https://doi.org/10.1080/10376178.2016.1246950

Craigie, M., Osseiran-Moisson, R., Hemsworth, D., Aoun, S., Francis, K., Brown, J., . . . Rees, C. (2015). The influence of trait-negative affect and compassion satisfaction on compassion fatigue in Australian nurses. *Psychological Trauma: Theory, Research, Practice and Policy.*, *8*(1), 88-97. https://doi.org/10.1037/tra0000050

Craigie, M., Slatyer, S., Hegney, D., Osseiran-Moisson, R., Gentry, E., Davis, S., . . . Rees, C. (2016). A pilot evaluation of a mindful self-care and resiliency (MSCR) intervention for nurses. *Mindfulness*, *7*(3), 764-774. https://doi.org/10.1007/s12671-016-0516-x

Creswell, J. W. (2015). *A concise introduction to mixed methods research*. SAGE Publications.

Creswell, J. W., & Creswell, J. D. (2018). *Research design : Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

Curtis, E. A., & Redmond, R. A. (2009). Survey postal questionnaire: Optimising response and dealing with non- response. *Nurse Researcher*, *16*(2), 76-88. https://doi.org/10.7748/nr2009.01.16.2.76.c6763

Cusack, L., Smith, M., Hegney, D., Rees, C., Breen, L., Witt, R., . . . Cheung, K. (2016). Exploring environmental factors in nursing workplaces that promote psychological resilience: Constructing a unified theoretical model. *Frontiers In Psychology*, *7*(600). https://doi.org/10.3389/fpsyg.2016.00600

Daniels, J. K., Hegadoren, K. M., Coupland, N. J., Rowe, B. H., Densmore, M., Neufeld, R. W. J., & Lanius, R. A. (2012). Neural correlates and predictive power of trait resilience in an acutely traumatized sample: A pilot investigation. *The Journal of Clinical Psychiatry*, *73*(3), 327-332. https://doi.org/10.4088/JCP.10m06293

Davidson, J. R. T., & Connor, K. M. (2017). Connor-Davidson Resilience Scale (CD-RISC) manual. In: Unpublished. 06-01-2017 and partly accessible at www.cd-risc.com.

Davies, G. (2005). *Queensland Public Hospitals commission of inquiry report*. Queensland Government. www.qphci.qld.gov.au

Dean, R. A., & Major, J. E. (2008). From critical care to comfort care: The sustaining value of humour. *Journal of Clinical Nursing*, *17*(8), 1088-1095. https://doi.org/10.1111/j.1365-2702.2007.02090.x

Delgado, C., Upton, D., Ranse, K., Furness, T., & Foster, K. (2017). Nurses' resilience and the emotional labour of nursing work: An integrative review of empirical literature. *International Journal of Nursing Studies*, *70*, 71-88. https://doi.org/10.1016/j.ijnurstu.2017.02.008

Dimaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*(2), 147-160. https://doi.org/10.2307/2095101

Dolan, G., Strodl, E., & Hamernik, E. (2012). Why renal nurses cope so well with their workplace stressors. *Journal of Renal Care*, *38*(4), 222-232. https://doi.org/10.1111/j.1755-6686.2012.00319.x

Drennan, V. M., & Ross, F. (2019). Global nurse shortages - the facts, the impact and action for change. *British Medical Bulletin*, *130*(1), 25-37. https://doi.org/10.1093/bmb/ldz014

Drury, V., Craigie, M., Francis, K., Aoun, S., & Hegney, D. G. (2014). Compassion satisfaction, compassion fatigue, anxiety, depression and stress in registered nurses in Australia: Phase 2 results. *Journal of Nursing Management*, *22*, 519-531. https://doi.org/10.1111/jonm.12168

Du Prel, J., Röhrig, B., Hommel, G., & Blettner, M. (2010). Choosing statistical tests: Part 12 of a series on evaluation of scientific publications. *Deutsches Arzteblatt international*, *107*(19), 343-348. https://doi.org/10.3238/arztebl.2010.0343

Dyess, L. S. M., Prestia, S. A., & Smith, C. M. (2015). Support for caring and resiliency among successful nurse leaders. *Nursing Administration Quarterly*, *39*(2), 104-116. https://doi.org/10.1097/NAQ.0000000000000101

Earvolino-Ramirez, M. (2007). Resilience: A concept analysis. *Nursing Forum*, *42*(2), 73-82. https://doi.org/10.1111/j.1744-6198.2007.00070.x

Edwards, J. R., & Cable, D. M. (2009). The value of value congruence. *Journal of Applied Psychology*, *94*(3), 654-677. https://doi.org/10.1037/a0014891

Elbogen, E. B., Johnson, S. C., Wagner, H. R., Newton, V. M., Timko, C., Vasterling, J. J., & Beckham, J. C. (2012). Protective factors and risk modification of violence in Iraq and Afghanistan War veterans. *The Journal of Clinical Psychiatry*, *73*(6), e767-e773. https://doi.org/10.4088/JCP.11m07593

English Oxford Dictionary. (2017). *Resilience*. https://en.oxforddictionaries.com/definition/resilience

English Oxford Dictionary. (2018). *Adversity*. https://en.oxforddictionaries.com/definition/adversity

Evans, J. (1997). Men in nursing: Issues of gender segregation and hidden advantage. *Journal of Advanced Nursing*, *26*(2), 226-231. https://doi.org/10.1046/j.1365-2648.1997.1997026226.x

Falavarjani, M. F., & Yeh, C. J. (2019). Optimism and distress tolerance in the social adjustment of nurses: Examining resilience as a mediator and gender as a moderator. *Journal of Research in Nursing*, *24*(7), 500-512. https://doi.org/10.1177/1744987119839102

Felton, J. S. (1998). Burnout as a clinical entity - its importance in health care workers. *48*(4), 237-250. https://doi.org/10.1093/occmed/48.4.237

Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs—principles and practices. *Health Services Research*, *48*, 2134-2156. https://doi.org/10.1111/1475-6773.12117

Fiabane, E., Giorgi, I., Sguazzin, C., & Argentero, P. (2013). Work engagement and occupational stress in nurses and other healthcare workers: the role of organisational and personal factors. *Journal of Clinical Nursing*, *22*(17-18), 2614-2624. https://doi.org/10.1111/jocn.12084

Fitzgerald, A. (2020). Professional identity: A concept analysis. *Nursing Forum*, *55*(3), 447-472. https://doi.org/10.1111/nuf.12450

Fitzpatrick, J. J., & McCarthy, G. (2016). *Nursing concept analysis : Applications to research and practice*. Springer Publishing Company.

Flarity, E. K., Gentry, E. J., & Mesnikoff, E. N. (2013). The effectiveness of an educational program on preventing and treating compassion fatigue in emergency nurses. *Advanced Emergency Nursing Journal*, *35*(3), 247-258. https://doi.org/10.1097/TME.0b013e31829b726f

Fletcher, D., & Sarkar, M. (2013). Psychological resilience: A review and critique of definitions, concepts, and theory. *European Psychologist*, *18*(1), 12-23. https://doi.org/10.1027/1016-9040/a000124

Foley, S. A., & Davis, H. A. (2017). A guide to concept analysis. *Clinical Nurse Specialist*, *31*(2), 70-73. https://doi.org/10.1097/NUR.0000000000000277

Ford, R., & Bammer, G. (2009). A research routine to assess bias introduced by low response rates in postal surveys. *Nurse Researcher*, *17*(1), 44-53.

Foster, K., Cuzzillo, C., & Furness, T. (2018). Strengthening mental health nurses' resilience through a workplace resilience programme: A qualitative inquiry. *Journal of Psychiatric and Mental Health Nursing*, *25*(5-6), 338-348. https://doi.org/10.1111/jpm.12467

Foster, K., Shochet, I., Wurfl, A., Roche, M., Maybery, D., Shakespeare-Finch, J., & Furness, T. (2018). On PAR: A feasibility study of the Promoting Adult Resilience programme with mental health nurses. *International Journal of Mental Health Nursing*. https://doi.org/10.1111/inm.12447

Foureur, M., Besley, K., Burton, G., Yu, N., & Crisp, J. (2013). Enhancing the resilience of nurses and midwives: Pilot of a mindfulness-based program for increased health, sense of coherence and decreased depression, anxiety and stress. *Contemporary Nurse*, *45*(1), 114-125. https://doi.org/10.5172/conu.2013.45.1.114

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology. *American Psychologist*, *56*(3), 218-226. https://doi.org/10.1037/0003-066X.56.3.218

Friborg, O., Hjemdal, O., Rosenvinge, J. H., & Martinussen, M. (2003). A new rating scale for adult resilience: What are the central protective resources behind healthy adjustment? *International Journal of Methods in Psychiatric Research*, *12*(2), 65-76. https://doi.org/10.1002/mpr.143

Fumis, R., Junqueira Amarante, G., Fátima Nascimento, A., & Vieira Junior, J. (2017). Moral distress and its contribution to the development of burnout syndrome among critical care providers. *Annals of Intensive Care*, *7*(1), 1-8. https://doi.org/10.1186/s13613-017-0293-2

Fusch, P., & Ness, L. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, *20*(9), 1408-1416.

Gabriel, A. S., Diefendorff, J. M., & Erickson, R. J. (2011). The relations of daily task accomplishment satisfaction with changes in affect: A multilevel study in nurses. *Journal of Applied Psychology*, *96*(5), 1095-1104. https://doi.org/10.1037/a0023937

Galatzer-levy, I. R., Brown, A. D., Henn-haase, C., Metzler, T. J., Neylan, T. C., & Marmar, C. R. (2013). Positive and negative emotion prospectively predict trajectories of resilience and distress among high-exposure police officers. *Emotion*, *13*(3), 545-553. https://doi.org/10.1037/a0031314

Gao, T., Ding, X., Chai, J., Zhang, Z., Zhang, H., Kong, Y., & Mei, S. (2017). The influence of resilience on mental health: The role of general well-being. *International Journal of Nursing Practice*, *23*(3). https://doi.org/10.1111/ijn.12535

Garmezy, N. (1991). Resiliency and vulnerability to adverse developmental outcomes associated with poverty. *American Behavioral Scientist*, *34*(4), 416-430. https://doi.org/10.1177/0002764291034004003

Garmezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child Development*, *55*(1), 97-111. https://doi.org/10.2307/1129837

Garmezy, N., & Streitman, S. (1974). Children at risk: The search for the antecedents of schizophrenia. Part I. Conceptual models and research methods. *Schizophrenia Bulletin*, *8*, 14-90. https://doi.org/10.1093/schbul/1.8.14

Gensimore, M. M., Maduro, R. S., Morgan, M. K., McGee, G. W., & Zimbro, K. S. (2020). The effect of nurse practice environment on retention and quality of care via burnout, work characteristics, and resilience: A moderated mediation model. *Journal of Nursing Administration*, *50*(10), 546-553. https://doi.org/10.1097/NNA.0000000000000932

Gershon, R. R. M., Barocas, B., Canton, A. N., Xianbin, L., & Vlahov, D. (2009). Mental, physical, and behavioral outcomes associated with perceived work stress in police officers. *Criminal Justice and Behavior*, *36*(3), 275-289. https://doi.org/10.1177/0093854808330015

Gijbels, H., O'Connell, R., Dalton-O'Connor, C., & O'Conovan, M. (2010). A systematic review evaluating the impact of post-registration nursing and midwifery education on

practice. *Nurse Education in Practice*, *10*(2), 64-69. https://doi.org/10.1016/j.nepr.2009.03.011

Gillespie, B. M., Chaboyer, W., & Wallis, M. (2009). The influence of personal characteristics on the resilience of operating room nurses: A predictor study. *International Journal of Nursing Studies*, *46*(7), 968-976. https://doi.org/10.1016/j.ijnurstu.2007.08.006

Gillespie, B. M., Chaboyer, W., Wallis, M., & Grimbeek, P. (2007). Resilience in the operating room: Developing and testing of a resilience model. *Journal of Advanced Nursing*, *59*(4), 427-438. https://doi.org/10.1111/j.1365-2648.2007.04340.x

Gillman, L., Adams, J., Kovac, R., Kilcullen, A., House, A., & Doyle, C. (2015). Strategies to promote coping and resilience in oncology and palliative care nurses caring for adult patients with malignancy: A comprehensive systematic review. *JBI Database of Systematic Reviews and Implementation Reports*, *13*(5), 131-204. https://doi.org/10.11124/jbisrir-2015-1898

Glass, N. (2009). An investigation of nurses' and midwives' academic/clinical workplaces: A healing model to improve and sustain hope, optimism, and resilience in professional practice. *Holistic Nursing Practice*, *23*(3), 158-170. https://doi.org/10.1097/HNP.0b013e3181a056c4

Goh, M. L., Ang, E. N. K., Chan, Y., He, H., & Vehviläinen-Julkunen, K. (2018). Patient satisfaction is linked to nursing workload in a Singapore hospital. *Clinical Nursing Research*, *27*(6), 692-713. https://doi.org/10.1177/1054773817708933

Gold, P. B., Engdahl, B. E., Eberly, R. E., Blake, R. J., Page, W. F., & Frueh, B. C. (2000). Trauma exposure, resilience, social support, and PTSD construct validity among former prisoners of war. *Social Psychiatry and Psychiatric Epidemiology*, *35*(1), 36-42. https://doi.org/10.1007/s001270050006

Goodare, P. (2017). Literature review: Why do we continue to lose our nurses? *The Australian Journal of Advanced Nursing*, *34*(4), 50-56.

Gorse, C., Johnston, D., & Pritchard, M. (2012). *A dictionary of construction, surveying, and civil engineering*. Oxford University Press.

Grafton, E., Gillespie, B., & Henderson, S. (2010). Resilience: The power within. *Oncology Nursing Forum*, *37*(6), 698. https://doi.org/10.1188/10.ONF.698-705

Graham, E. M., & Duffield, C. (2010). An ageing nursing workforce. *Australian Health Review*, *34*(1), 44-48. https://doi.org/10.1071/AH09684

Graham, J. R., Shier, M. L., & Nicholas, D. (2016). Workplace congruence and occupational outcomes among social service workers. *The British Journal of Social Work*, *46*(4), 1096-1114. https://doi.org/10.1093/bjsw/bcu153

Gregory, B. T., Harris, S. G., Armenakis, A. A., & Shook, C. L. (2009). Organizational culture and effectiveness: A study of values, attitudes, and organizational outcomes. *Journal of Business Research*, *62*(7), 673-679. https://doi.org/10.1016/j.jbusres.2008.05.021

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, *18*(1), 59-82. https://doi.org/10.1605/01.301-0006629869.2009

Guest, R., Craig, A., Nicholson Perry, K., Tran, Y., Ephraums, C., Hales, A., . . . Middleton, J. (2015). Resilience following spinal cord injury: A prospective controlled study investigating the influence of the provision of group cognitive behavior therapy during inpatient rehabilitation. *Rehabilitation Psychology*, *60*(4), 311-321. https://doi.org/10.1037/rep0000052

Guetterman, T. C., Fetters, M. D., & Creswell, J. W. (2015). Integrating quantitative and qualitative results in health science mixed methods research through joint displays. *Annals of Family Medicine*, *13*(6), 554-561. https://doi.org/10.1370/afm.1865

Guo, Y., Cross, W., Plummer, V., Lam, L., Luo, Y., & Zhang, J. (2017). Exploring resilience in Chinese nurses: A cross-sectional study. *Journal of Nursing Management*, *25*(3), 223-230. https://doi.org/10.1111/jonm.12457

Guo, Y., Plummer, V., Lam, L., Wang, Y., Cross, W., & Zhang, J. (2019). The effects of resilience and turnover intention on nurses' burnout: Findings from a comparative cross-sectional study. *Journal of Clinical Nursing*, *28*(3-4), 499-508. https://doi.org/10.1111/jocn.14637

Hagen, J., Knizek, B. L., & Hjelmeland, H. (2017). Mental health nurses' experiences of caring for suicidal patients in psychiatric wards: An emotional endeavor. *Archives of Psychiatric Nursing*, *31*(1), 31-37. https://doi.org/10.1016/j.apnu.2016.07.018

Halcomb, E., & Hickman, L. (2015). Mixed methods research. *Nursing Standard*, *29*(32), 41-47. https://doi.org/10.7748/ns.29.32.41.e8858

Happell, B., Dwyer, T., Reid-Searl, K., Burke, K. J., Caperchione, C. M., & Gaskin, C. J. (2013). Nurses and stress: Recognizing causes and seeking solutions. *Journal of Nursing Management*, *21*(4), 638-647. https://doi.org/10.1111/jonm.12037

Harris, M. D., Williams, L. M., & Duke, R. (2020). The millennial engagement, resiliency and retention study: What does your millennial advanced practice registered nurse workforce really want? *Journal of the American Association of Nurse Practitioners*. https://doi.org/10.1097/JXX.0000000000000535

Hart, P. L., Brannan, J. D., & De Chesnay, M. (2014). Resilience in nurses: An integrative review. *Journal of Nursing Management*, *22*(6), 720-734. https://doi.org/10.1111/j.1365-2834.2012.01485.x

Hart, S. M., & Warren, A. M. (2015). Understanding nurses' work: Exploring the links between changing work, labour relations, workload, stress, retention and recruitment. *Economic and Industrial Democracy*, *36*(2), 305-329. https://doi.org/10.1177/0143831X13505119

Health Workforce Australia. (2014). Australia's future health workforce - nurses - overview report. Commonwealth of Australia. https://www.health.gov.au/resources/publications/nurses-australias-future-health-workforce-reports

Hegney, D., Craigie, M., Hemsworth, D., Osseiran-Moisson, R., Aoun, S., Francis, K., & Drury, V. (2014). Compassion satisfaction, compassion fatigue, anxiety, depression and stress in registered nurses in Australia: study 1 results. *Journal of Nursing Management*, *22*, 506-518. https://doi.org/10.1111/jonm.12160

Hegney, D., Eley, R., Osseiran-Moisson, R., & Francis, K. (2015). Work and personal well-being of nurses in Queensland: Does rurality make a difference? *Australian Journal of Rural Health*, *23*(6), 359-365. https://doi.org/10.1111/ajr.12206

Hegney, D., Rees, C. S., Eley, R., Osseiran-Morrison, R., & Francis, K. (2015). The contribution of individual psychological resilience in determining the professional quality of life of Australian nurses. *Frontiers in Psychology*, *6*, 1613. https://doi.org/10.3389/fpsyg.2015.01613

Hendin, H., & Haas, A. P. (1984). *Wounds of war: The psychological aftermath of combat in Vietnam*. Basic Books.

Hodges, H. F., Troyan, P. J., & Keeley, A. C. (2010). Career persistence in baccalaureate-prepared acute care nurses. *Journal of Nursing Scholarship*, *42*(1), 83-91. https://doi.org/10.1111/j.1547-5069.2009.01325.x

Hoeve, Y., Brouwer, J., & Kunnen, S. (2020). Turnover prevention: The direct and indirect association between organizational job stressors, negative emotions and professional commitment in novice nurses. *Journal of Advanced Nursing*, *76*(3), 836-845. https://doi.org/10.1111/jan.14281

Hoge, E. A., Austin, E. D., & Pollack, M. H. (2007). Resilience: Research evidence and conceptual considerations for posttraumatic stress disorder. *Depression and Anxiety*, *24*(2), 139-152. https://doi.org/10.1002/da.20175

Hsieh, H., Chang, S., & Wang, H. (2017). The relationships among personality, social support, and resilience of abused nurses at emergency rooms and psychiatric wards in Taiwan. *Women Health*, *57*(1), 40-51. https://doi.org/10.1080/03630242.2016.1150385

Hsieh, H., Hung, Y., Wang, H., Ma, S., & Chang, S. (2016). Factors of resilience in emergency department nurses who have experienced workplace violence in Taiwan. *Journal of Nursing Scholarship*, *48*(1), 23-30. https://doi.org/10.1111/jnu.12177

Hudgins, T. A. (2016). Resilience, job satisfaction and anticipated turnover in nurse leaders. *Journal of Nursing Management*, *24*(1), E62-E69. https://doi.org/10.1111/jonm.12289

Hyde, P., & Williamson, B. (2000). The importance of organisational values. Part 1: Is your organisation value congruent? *Focus on Change Management*(66), 14-18.

Itzhaki, M., Peles-Bortz, A., Kostistky, H., Barnoy, D., Filshtinsky, V., & Bluvstein, I. (2015). Exposure of mental health nurses to violence associated with job stress, life satisfaction, staff resilience, and post-traumatic growth. *International Journal of Mental Health Nursing*, *24*, 403-412. https://doi.org/10.1111/inm.12151

Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods*, *18*(1), 3-20. https://doi.org/10.1177/1525822X05282260

Jackson, D., Firtko, A., & Edenborough, M. (2007). Personal resilience as a strategy for surviving and thriving in the face of workplace adversity: A literature review. *Journal of Advanced Nursing*, *60*(1), 1-9. https://doi.org/10.1111/j.1365-2648.2007.04412.x

Janicijevic, I., Seke, K., Djokovic, A., & Filipovic, T. (2013). Healthcare workers satisfaction and patient satisfaction - where is the linkage? *Hippokratia*, *17*(2), 157-162.

Jarrad, R., Hammad, S., Shawashi, T., & Mahmoud, N. (2018). Compassion fatigue and substance use among nurses. *Annals of General Psychiatry*, *17*(13). https://doi.org/10.1186/s12991-018-0183-5

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, *1*(2), 112-133. https://doi.org/10.1177/1558689806298224

Jose, S., Dhandapani, M., & Cyriac, M. C. (2020). Burnout and resilience among frontline nurses during COVID-19 pandemic: A cross-sectional study in the emergency department of a tertiary care center, North India. *Indian Journal of Critical Care Medicine*, *24*(11), 1081-1088. https://doi.org/10.5005/jp-journals-10071-23667

Jou, R. C., Kuo, C. W., & Tang, M. L. (2013). A study of job stress and turnover tendency among air traffic controllers: The mediating effects of job satisfaction.

Transportation Research Part E, *57*, 95-104. https://doi.org/10.1016/j.tre.2013.01.009

Kahana, B., Harel, Z., & Kahana, E. (1988). Predictors of psychological well-being among survivors of the Holocaust. In J. P. Wilson, Z. Harel, & B. Kahana (Eds.), *Human adaptation to extreme stress: From the Holocaust to Vietnam* (pp. 171-192). Plenum Press.

Kalliath, T., & Brough, P. (2008). Work-life balance: A review of the meaning of the balance construct. *Journal of Management and Organization*, *14*(3), 323-327. https://doi.org/10.5172/jmo.837.14.3.323

Kent, M. (2006). *The Oxford dictionary of sports science & medicine* (3rd ed.). Oxford University Press.

Khamisa, N., Peltzer, K., & Oldenburg, B. (2013). Burnout in relation to specific contributing factors and health outcomes among nurses: A systematic review. *International Journal of Environmental Research and Public Health.*, *10*, 2214-2240. https://doi.org/10.3390/ijerph10062214

Kim, S. R., Park, O. L., Kim, H. Y., & Kim, J. Y. (2019). Factors influencing well-being in clinical nurses: A path analysis using a multi-mediation model. *Journal of Clinical Nursing*, *28*(23-24), 4549-4559. https://doi.org/10.1111/jocn.15045

Kimbrel, N. A., Steffen, L. E., Meyer, E. C., Kruse, M. I., Knight, J. A., Zimering, R. T., & Gulliver, S. B. (2011). A revised measure of occupational stress for firefighters: Psychometric properties and relationship to posttraumatic stress disorder, depression, and substance abuse. *Psychological Services*, *8*(4), 294-306. https://doi.org/10.1037/a0025845

Kluznik, J. C., Speed, N., Van Velkenberg, C., & MacGraw, R. (1986). Forty-year follow-up of United States prisoners of war. *American Journal of Psychiatry*, *143*(11), 1443-1446. https://doi.org/10.1176/ajp.143.11.1443

Kobasa, S. C., Maddi, S. R., & Kahn, S. (1982). Hardiness and health: A prospective study. *Journal of Personality and Social Psychology*, *42*(1), 168-177. https://doi.org/10.1037/0022-3514.42.1.168

Koen, M., van Eeden, C., & Wissing, M. (2011). The prevalence of resilience in a group of professional nurses. *Health SA Gesonheid*, *16*(1), 1-11. https://doi.org/10.4102/hsag.v16i1.576

Kohler, U., & Kreuter, F. (2012). *Data analysis using Stata* (3rd ed.). Stata Press.

Koinis, A., Giannou, V., Drantaki, V., Angelaina, S., Stratou, E., & Saridi, M. (2015). The impact of healthcare workers job environment on their mental-emotional health. Coping strategies: the case of a local general hospital. *Health Psychology Research*, *3*(1). https://doi.org/10.4081/hpr.2015.1984

Kornhaber, R. A., & Wilson, A. (2011). Building resilience in burns nurses: A descriptive phenomenological inquiry. *Journal of Burn Care & Research*, *32*(4), 481-488. https://doi.org/10.1097/BCR.0b013e3182223c89

Kutluturkan, S., Sozeri, E., Uysal, N., & Bay, F. (2016). Resilience and burnout status among nurses working in oncology. *Annals of General Psychiatry*, *15*(33). https://doi.org/10.1186/s12991-016-0121-3

Lamiani, G., Dordoni, P., & Argentero, P. (2017). Value congruence and depressive symptoms among critical care clinicians: The mediating role of moral distress. *Stress and Health*, *34*(1), 135-142. https://doi.org/10.1002/smi.2769

Lanz, J. J., & Bruk-Lee, V. (2017). Resilience as a moderator of the indirect effects of conflict and workload on job outcomes among nurses. *Journal of Advanced Nursing*, *73*(12), 2973-2986. https://doi.org/10.1111/jan.13383

Larson, M. S. (1977). *The rise of professionalism: A sociological analysis*. University of California Press.

Lee, J.-S., Ahn, Y.-S., Jeong, K.-S., Chae, J.-H., & Choi, K.-S. (2014). Resilience buffers the impact of traumatic events on the development of PTSD symptoms in firefighters. *Journal of Affective Disorders*, *162*, 128-133. https://doi.org/10.1016/j.jad.2014.02.031

Leech, N., & Onwuegbuzie, A. (2009). A typology of mixed methods research designs. *International Journal of Methodology*, *43*(2), 265-275. https://doi.org/10.1007/s11135-007-9105-3

Leiter, M. P., Frank, E., & Matheson, T. (2009). Demands, values, and burnout relevance for physicians. *Canadian Family Physician*, *55*(12), 1224-1225 e1221-1226.

Lengnick-Hall, C. A., Beck, T. E., & Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. *Human Resource Management Review*, *21*(3), 243-255. https://doi.org/10.1016/j.hrmr.2010.07.001

Leung, F., & Savithiri, R. (2009). Spotlight on focus groups. *Canadian Family Physician*, *55*, 218-219.

Lim, H. A., Tan, J. Y. S., Liu, J., Chua, J., Ang, E. N. K., Kua, E. H., & Mahendran, R. (2016). Strengthening resilience and reducing stress in psychosocial care for nurses practicing in oncology settings. *Journal of Continuing Education in Nursing*, *47*(1), 8-10. https://doi.org/10.3928/00220124-20151230-03

Liu, D., Fairweather-Schmidt, A., Burns, R., & Roberts, R. (2015). The Connor-Davidson Resilience Scale: Establishing invariance between gender across the lifespan in a large community based study. *Journal of Psychopathology and Behavioral Assessment*, *37*(2), 340-348. https://doi.org/10.1007/s10862-014-9452-z

Lowe, L. D. (2013). Creating a caring work environment and fostering nurse resilience. *International Journal for Human Caring*, *17*(4), 52-59. https://doi.org/10.20467/1091-5710.17.4.52

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, *71*(3), 543-562. https://doi.org/10.1111/1467-8624.00164

Maben, J., & Bridges, J. (2020). Covid-19: Supporting nurses' psychological and mental health. *Journal of Clinical Nursing*, *29*(15-16), 2742-2750. https://doi.org/10.1111/jocn.15307

Mahoney, J. L., & Bergman, L. R. (2002). Conceptual and methodological considerations in a developmental approach to the study of positive adaptation. *Journal of Applied Developmental Psychology*, *23*(2), 195-217. https://doi.org/10.1016/S0193-3973(02)00104-1

Maier, R. (2011). Dimensions of stress among air traffic controllers. *Journal of Psychological and Educational Research*, *19*(1), 52-62.

Manzano García, G., & Ayala Calvo, J. C. (2012). Emotional exhaustion of nursing staff: Influence of emotional annoyance and resilience. *International Nursing Review*, *59*(1), 101-107. https://doi.org/10.1111/j.1466-7657.2011.00927.x

Marie, M., Hannigan, B., & Jones, A. (2017). Resilience of nurses who work in community mental health workplaces in Palestine. *International Journal of Mental Health Nursing*, *26*(4), 344-354. https://doi.org/10.1111/inm.12229

Martin, R. A., & Lefcourt, H. M. (1984). Situational Humor Response Questionnaire: Quantitative measure of sense of humor. *Journal of Personality and Social Psychology*, *47*(1), 145-155. https://doi.org/10.1037/0022-3514.47.1.145

Martinussen, M., & Richardsen, A. (2006). Air traffic controller burnout: Survey responses regarding job demands, job resources, and health. *Aviation, Space and Environmental Medicine*, *77*(4), 422-428.

Martinussen, M., Richardsen, A. M., & Burke, R. J. (2007). Job demands, job resources, and burnout among police officers. *Journal of Criminal Justice*, *35*(3), 239-249. https://doi.org/10.1016/j.jcrimjus.2007.03.001

Matos, P. S., Neushotz, L. A., Quinn Griffin, M. T., & Fitzpatrick, J. J. (2010). An exploratory study of resilience and job satisfaction among psychiatric nurses working in inpatient units. *International Journal of Mental Health Nursing*, *19*(5), 307-312. https://doi.org/10.1111/j.1447-0349.2010.00690.x

McAllister, M. (2013). Resilience: A personal attribute, social process and key professional resource for the enhancement of the nursing role. *Professioni Infermieristiche*, *66*(1), 55-62. https://doi.org/10.7429/pi.2013.661055.

McAllister, M., & McKinnon, J. (2009). The importance of teaching and learning resilience in the health disciplines: A critical review of the literature. *Nurse Education Today*, *29*(4), 371-379. https://doi.org/10.1016/j.nedt.2008.10.011

McDonald, G., Jackson, D., Vickers, M. H., & Wilkes, L. (2016). Surviving workplace adversity: A qualitative study of nurses and midwives and their strategies to increase personal resilience. *Journal of Nursing Management*, *24*(1), 123-131. https://doi.org/10.1111/jonm.12293

McDonald, G., Jackson, D., Wilkes, L., & Vickers, M. (2013). Personal resilience in nurses and midwives: Effects of a work-based educational intervention. *Contemporary Nurse*, *45*(1), 134-143. https://doi.org/10.5172/conu.2013.45.1.134

McDonald, G., Jackson, D., Wilkes, L., & Vickers, M. H. (2012). A work-based educational intervention to support the development of personal resilience in nurses and midwives. *Nurse Education Today*, *32*(4), 378-384. https://doi.org/10.1016/j.nedt.2011.04.012

McHugh, M. D., Kutney-Lee, A., Cimiotti, J. P., Sloane, D. M., & Aiken, L. H. (2011). Nurses' widespread job dissatisfaction, burnout, and frustration with health benefits signal problems for patient care. *Health Affairs (Project Hope)*, *30*(2), 202-210. https://doi.org/10.1377/hlthaff.2010.0100

Mealer, M., Conrad, D., Evans, J., Jooste, K., Solyntjes, J., Rothbaum, B., & Moss, M. (2014). Feasibility and acceptability of a resilience training program for intensive care unit nurses. *American Journal of Critical Care*, *23*(6), 97-105. https://doi.org/10.4037/ajcc2014747

Mealer, M., Jones, J., & Meek, P. (2017). Factors affecting resilience and development of posttraumatic stress disorder in critical care nurses. *American Journal of Critical Care*, *26*(3), 184-192. https://doi.org/10.4037/ajcc2017798

Mealer, M., Jones, J., & Moss, M. (2012b). A qualitative study of resilience and posttraumatic stress disorder in United States ICU nurses. *Intensive Care Medicine*, *38*(9), 1445-1451. https://doi.org/10.1007/s00134-012-2600-6

Mealer, M., Jones, J., Newman, J., McFann, K. K., Rothbaum, B., & Moss, M. (2012a). The presence of resilience is associated with a healthier psychological profile in intensive care unit (ICU) nurses: Results of a national survey. *International Journal of Nursing Studies*, *49*(3), 292-299. https://doi.org/10.1016/j.ijnurstu.2011.09.015

Meyer, E. C., Zimering, R., Daly, E., Knight, J., Kamholz, B. W., & Gulliver, S. B. (2012). Predictors of posttraumatic stress disorder and other psychological symptoms in trauma-exposed firefighters. *Psychological Services*, *9*(1), 1-15. https://doi.org/10.1037/a0026414

Mills, J., Woods, C., Harrison, H., Chamberlain-Salaun, J., & Spencer, B. (2017). Retention of early career registered nurses: The influence of self-concept, practice environment and resilience in the first five years post-graduation. *Journal of Research in Nursing*, *22*(5). https://doi.org/10.1177/1744987117709515

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLOS Medicine*, *6*(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097

Molina, A. D. (2016). Value congruence. In A. Farazmand (Ed.), *Global Encyclopedia of Public Administration, Public Policy, and Governance*. Springer. https://doi.org/https://doi.org/10.1007/978-3-319-31816-5

Moran, P. B., & Eckenrode, J. (1992). Protective personality characteristics among adolescent victims of maltreatment. *Child Abuse and Neglect: The International Journal*, *16*(5), 743-754. https://doi.org/10.1016/0145-2134(92)90111-4

Morrison, K., & Korol, S. (2014). Nurses' perceived and actual caregiving roles: identifying factors that can contribute to job satisfaction. *Journal of Clinical Nursing*, *23*, 3468-3477. https://doi.org/10.1111/jocn.12597

Morse, J. (2017). Application of Mixed-methods Research in Clinical Practice. *Aquichan*, *17*(1), 5-6. https://doi.org/10.5294/aqui.2017.17.1.1

Morse, J. M. (1991). Approaches to qualitative-quantitative methodological triangulation. *Nursing Research*, *40*(1), 120-123.

Morse, J. M., & Chung, S. E. (2003). Toward holism: The significance of methodological lluralism. *International Journal of Qualitative Methods*, *2*(3), 13-20. https://doi.org/10.1177/160940690300200302

Morse, J. M., & Niehaus, L. (2009). Mixed methods design: Principles and procedures. Routledge.

Morse, M. J. (1995). Exploring the theoretical basis of nursing using advanced techniques of concept analysis. *Advances in Nursing Science*, *17*(3), 31-46. https://doi.org/10.1097/00012272-199503000-00005

Nastasi, B. K., Hitchcock, J., Sarkar, S., Burkholder, G., Varjas, K., & Jayasena, A. (2007). Mixed methods in intervention research: Theory to adaptation. *Journal of Mixed Methods Research*, *1*(2), 164-182. https://doi.org/10.1177/1558689806298181

Nastasi, B. K., Hitchcock, J. H., & Brown, L. M. (2010). An inclusive framework for conceptualizing mixed methods design typologies: Moving towards fully integrated synergistic research models. In A. Tashakkori & C. Teddlie (Eds.), *Sage handbook of mixed methods in social and behavioural research* (2nd ed., pp. 305-338). SAGE Publications. https://doi.org/10.4135/9781506335193

National Health and Medical Research Council. (2007). National statement on ethical conduct in human research 2007 (updated 2018). https://www.nhmrc.gov.au/about-

us/publications/national-statement-ethical-conduct-human-research-2007-updated-2018
National Statistical Service. (2017). Retrieved from http://www.nss.gov.au/nss/home.nsf/pages/Sample+size+calculator
Nayak, B. K., & Hazra, A. (2011). How to choose the right statistical test? *Indian Journal of Ophthalmology*, *59*(2), 85-86. https://doi.org/10.4103/0301-4738.77005
Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, *16*(1). https://doi.org/10.1177/1609406917733847
Nursing and Midwifery Board of Australia. (2016). *Registered nurse standards for practice*. https://www.nursingmidwiferyboard.gov.au/codes-guidelines-statements/professional-standards/registered-nurse-standards-for-practice.aspx
O'Cathain, A., Murphy, E., & Nicholl, J. (2007). Why, and how, mixed methods research is undertaken in health services research in England: A mixed methods study. *BMC Health Services Research*, *7*(1), 85-85. https://doi.org/10.1186/1472-6963-7-85
O'Dougherty-Wright, M., Masten, A. S., & Narayan, A. J. (2013). Resilience processes in development: Four waves of research on positive adaptation in the context of adversity. In S. Goldstein & R. B. Brooks (Eds.), *Handbook of Resilience in Children* (2nd ed.). Springer.
O'Dougherty-Wright, M., Masten, A. S., Northwood, A., & Hubbard, J. J. (1997). Long-term effects of massive trauma: Developmental and psychobiological perspectives. In D. Cicchetti & S. L. Toth (Eds.), *Rochester Symposium on Developmental Psychopathology.* (Vol. 8, pp. 181-225). University of Rochester.
Online Etymology Dictionary. (2017). *Resilient*. Retrieved from http://www.etymonline.com/word/resilient
Onwuegbuzie, A. J., & Collins, K. M. T. (2007). A typology of mixed methods sampling designs in social science research. *Qualitative Report*, *12*(2), 281-316. https://doi.org/10.46743/2160-3715/2007.1638
Orem, D. E. (1985). *Nursing: Concepts of practice* (3rd ed.). McGraw-Hill.
O'Cathain, A., Murphy, E., & Nicholl, J. (2010). Three techniques for integrating data in mixed methods studies. *British Medical Journal*, *341*(7783). https://doi.org/10.1136/bmj.c4587
Öksüz, E., Demiralp, M., Mersin, S., Tüzer, H., Aksu, M., & Sarıkoc, G. (2019). Resilience in nurses in terms of perceived social support, job satisfaction and certain variables. *Journal of Nursing Management*, *27*(2), 423-432. https://doi.org/10.1111/jonm.12703
Pan, J., & Chan, C. L. W. (2007). Resilience: A new research area in positive psychology. *Psychologia*, *50*(3), 164-176. https://doi.org/10.2117/psysoc.2007.164
Panahi, B., Moezzi, E., Preece, C. N., & Zakaria, W. N. W. (2016). Personal-organisational value conflicts and job satisfaction of internal construction stakeholders. *Construction Economics and Building*, *16*(1), 1-17. https://doi.org/10.5130/AJCEB.v1i1.4811
Pannell, L. M., Rowe, L., & Tully, S. (2016). Stress resiliency practices in neonatal nurses. *Advances in Neonatal Care*, *17*(4), 274-281. https://doi.org/10.1097/ANC.0000000000000366
Papazoglou, K., & Andersen, J. P. (2014). A guide to utilizing police training as a tool to promote resilience and improve health outcomes among police officers.

Traumatology: An International Journal, *20*(2),103-111. https://doi.org/10.1037/h0099394

Park, C., & Allaby, M. (2017). *A dictionary of environment and conservation* (3rd ed.). Oxford University Press.

Pietrzak, R. H., Tsai, J ., Kirwin, P. D., & Southwick, S. M. (2014). Successful aging among older veterans in the United States. *American Journal Geriatric Psychiatry*, *22*, 551-563. https://doi.org/10.1016/j.jagp.2012.11.018

Pipe, T. B., Buchda, V. L., Launder, S., Hudak, B., Hulvey, L., Karns, K. E., & Pendergast, D. (2012). Building personal and professional resources of resilience and agility in the healthcare workplace. *Stress and Health*, *28*(1), 11-22. https://doi.org/10.1002/smi.1396

Plano Clark, V. L., & Creswell, J. W. (2008). *The mixed methods reader*. Sage Publications.

Potter, P., Deshields, T., Divanbeigi, J., Berger, J., Cipriano, D., Norris, L., & Olsen, S. (2010). Compassion fatigue and burnout: Prevalence among oncology nurses. *Clinical Journal of Oncology Nursing*, *14*(5), E56-E62. https://doi.org/10.1188/10.CJON.E56-E62

Prosser, S. J., Metzger, M., & Gulbransen, K. (2017). Don't just survive, thrive: Understanding how acute psychiatric nurses develop resilience. *Archives of Psychiatric Nursing*, *31*(2), 171-176. https://doi.org/10.1016/j.apnu.2016.09.010

QSR-International. (2015). *NVivo qualitative data analysis software: Version 11*. QSR International Pty Ltd.

Qualtrics. (2017). *Qualtrics XM software suite*. Qualtrics. https://www.qualtrics.com

Ray, S. L., Wong, C., White, D., & Heaslip, K. (2013). Compassion satisfaction, compassion fatigue, work life conditions, and burnout among frontline mental health care professionals. *Traumatology*, *19*(4), 255-267. https://doi.org/10.1177/1534765612471144

Rees, C. S., Breen, L. J., Cusack, L., & Hegney, D. (2015). Understanding individual resilience in the workplace: The international collaboration of workforce resilience model. *Frontiers in Psychology*, *6*, 73. https://doi.org/10.3389/fpsyg.2015.00073

Ren, T., & Hamann, D. J. (2015). Employee value congruence and job attitudes: The role of occupational status. *Personnel Review*, *44*(4), 550-566. https://doi.org/10.1108/PR-06-2013-0096

Richards, K., Campenni, C., & Muse-Burke, J. (2010). Self-care and well-being in mental health professionals: The mediating effects of self-awareness and mindfulness. *Journal of Mental Health Counseling*, *32*(3), 247-264. https://doi.org/10.17744/mehc.32.3.0n31v88304423806

Rodgers, B. L., & Knafl, K. A. (1993). *Concept development in nursing : foundations, technqiues, and applications*. Saunders.

Rushton, C., Batcheller, J., Schroeder, K., & Donohue, P. (2015). Burnout and resilience among nurses practising in high-intensity settings. *American Journal of Critical Care*, *24*(5), 412-420. https://doi.org/10.4037/ajcc2015291

Russo, C., Calo, O., Harrison, G., Mahoney, K., & Zavotsky, K. (2018). Resilience and Coping After Hospital Mergers. *Clinical Nurse Specialist*, *32*(2), 97-102. https://doi.org/10.1097/NUR.0000000000000358

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, *57*(3), 316-331. https://doi.org/10.1111/j.1939-0025.1987.tb03541.x

Sarason, I. G., Levine, H. M., Basham, R. B., & Sarason, B. R. (1983). Assessing social support: The Social Support Questionnaire. *Journal of Personality and Social Psychology*, *44*(1), 127-139. https://doi.org/10.1037/0022-3514.44.1.127

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, *67*(6), 1063-1078. https://doi.org/10.1037/0022-3514.67.6.1063

Schoonenboom, J., & Johnson, R. (2017). How to Construct a Mixed Methods Research Design. *KZfSS Kölner Zeitschrift für Soziologie und Sozialpsychologie*, *69*(2), 107-131. https://doi.org/10.1007/s11577-017-0454-1

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, *22*, 63-75. https://doi.org/10.3233/EFI-2004-22201

Shepperd, J. A., Pogge, G., & Howell, J. L. (2017). Assessing the consequences of unrealistic optimism: Challenges and recommendations. *Consciousness and Cognition*, *50*, 69-78. https://doi.org/10.1016/j.concog.2016.07.004

Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The self-efficacy scale: Construction and validation. *Psychological Reports*, *51*(2), 663-671. https://doi.org/10.2466/pr0.1982.51.2.663

Shimoinaba, K., Connor, M., Lee, S., & Kissane, D. (2015). Nurses' resilience and nurturance of the self. *International Journal of Palliative Nursing*, *21*(10), 504-510. https://doi.org/10.12968/ijpn.2015.21.10.504

Shirey, R. M. (2012). How resilient are your team members? *The Journal of Nursing Administration*, *42*(12), 551-553. https://doi.org/10.1097/NNA.0b013e318274b4d6

Slatyer, S., Craigie, M., Heritage, B., Davis, S., & Rees, C. (2018). Evaluating the effectiveness of a brief mindful self-care and resiliency (MSCR) intervention for nurses: A controlled trial. *Mindfulness*, *9*, 534-546. https://doi.org/10.1007/s12671-017-0795-x

Slatyer, S., Craigie, M., Rees, C., Davis, S., Dolan, T., & Hegney, D. (2018). Nurse experience of participation in a mindfulness-based self-care and resiliency intervention. *Mindfulness, 9,* 610-617. https://doi.org/10.1007/s12671-017-0802-2

Smith, B., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine*, *15*(3), 194-200. https://doi.org/10.1080/10705500802222972

Smithson, J. (2000). Using and analysing focus groups: Limitations and possibilities. *International Journal of Social Research Methodology*, *3*(2), 103-119. https://doi.org/10.1080/136455700405172

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, *104*, 333-339. https://doi.org/10.1016/j.jbusres.2019.07.039

Son, D., & Ham, O. (2020). Influence of group resilience on job satisfaction among Korean nurses: A cross-sectional study. *Journal of Clinical Nursing*, *29*(17-18), 3473-3481. https://doi.org/10.1111/jocn.15385

Southwick, S. M., Bonanno, G. A., Masten, A. S., Panter-Brick, C., & Yehuda, R. (2014). Resilience definitions, theory, and challenges: Interdisciplinary perspectives. *European Journal of Psychotraumatology*, *5*(1). https://doi.org/10.3402/ejpt.v5.25338

Spiva, L., Davis, S., Case-Wirth, J., Hedenstrom, L., Hogue, V., Box, M., . . . Ahlers, L. (2020). The effectiveness of charge nurse training on leadership style and resiliency. *Journal of Nursing Administration*, *50*(2), 95-103. https://doi.org/10.1097/NNA.0000000000000848

St John of God Healthcare. (2018). *Our history*. https://www.sjog.org.au/about-us/history

St John of God Health. (2019). *Our vision.* https://www.sjog.org.au/-/media/files/about-us/our-vision

StataCorp. (2015b). *One-way analysis of variance*. https://www.stata.com/manuals13/roneway.pdf

StataCorp. (2015a). *Stata statistical software: Release 14*. StataCorp LP.

Streubert, H. J., & Carpenter, D. R. (2011). *Qualitative research in nursing : Advancing the humanistic imperative* (5th ed.). Wolters Kluwer Health/Lippincott Williams & Wilkins.

Tabakakis, C., McAllister, M., Bradshaw, J., & To, Q. G. (2019). Psychological resilience in New Zealand registered nurses: The role of workplace characteristics. *Journal of Nursing Management*, *27*(7), 1351-1358. https://doi.org/10.1111/jonm.12815

Tahghighi, M., Brown, J. A., Breen, L. J., Kane, R., Hegney, D., & Rees, C. S. (2019). A comparison of nurse shift workers' and non-shift workers' psychological functioning and resilience. *Journal of Advanced Nursing*, *75*(11), 2570-2578. https://doi.org/10.1111/jan.14023

Tan-Kristanto, S., & Kiropoulos, L. A. (2015). Resilience, self- efficacy, coping styles and depressive and anxiety symptoms in those newly diagnosed with multiple sclerosis. *Psychology, Health & Medicine*, *20*(6), 635-645. https://doi.org/10.1080/13548506.2014.999810

Tanay, M., Wiseman, T., Roberts, J., & Ream, E. (2014). A time to weep and a time to laugh: Humour in the nurse–patient relationship in an adult cancer setting. *Supportive Care in Cancer*, *22*(5), 1295-1301. https://doi.org/10.1007/s00520-013-2084-0

Tariq, S., & Woodman, J. (2013). Using mixed methods in health research. *Journal of the Royal Society of Medicine Short Reports*, *4*(6). https://doi.org/10.1177/2042533313479197

Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology : Combining qualitative and quantitative approaches*. Sage Publications.

Tashakkori, A., & Teddlie, C. (2010). *Sage handbook of mixed methods in social & behavioral research* (2nd ed.). SAGE Publications.

Taylor, R. A. (2019). Contemporary issues: Resilience training alone is an incomplete intervention. *Nurse Education Today*, *78*, 10-13. https://doi.org/https://doi.org/10.1016/j.nedt.2019.03.014

Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research : Integrating quantitative and qualitative approaches in the social and behavioral sciences*. Sage Publications.

The Joanna Briggs Institute. (2014). *JBI levels of evidence.* https://joannabriggs.org/jbi-approach.html#tabbed-nav=Levels-of-Evidence

The Joanna Briggs Institute. (2017). *The Joanna Briggs Institute critical appraisal tools for use in JBI systematic reviews.* http://joannabriggs.org/research/critical-appraisal-tools.html

Thorson, J. A., & Powell, F. C. (1991). Measurement of sense of humor. *Psychological Reports*, *69*(2), 691-702. https://doi.org/10.2466/pr0.1991.69.2.691

Tofthagen, R., Talseth, A., & Fagerström, L. (2014). Mental health nurses' experiences of caring for patients suffering from self-harm. *Nursing Research and Practice*, *2014*, 905741. https://doi.org/10.1155/2014/905741
Traynor, M. (2017). Resilience: Part of the problem or part of the solution? *Mental Health Nursing*, *37*(6), 8-10.
Tubbert, S. J. (2016). Resiliency in emergency nurses. *Journal of Emergency Nursing*, *42*(1), 47-52. https://doi.org/10.1016/j.jen.2015.05.016
Turner, S. B. (2014). The resilient nurse: An emerging concept. *Nurse Leader*, *12*(6), 71-73. https://doi.org/10.1016/j.mnl.2014.03.013
Turner, S. B., & Kaylor, S. D. (2015). Neuman systems model as a conceptual framework for nurse resilience. *Nursing Science Quarterly*, *28*(3), 213-217. https://doi.org/10.1177/0894318415585620
Tusaie, K., & Dyer, J. (2004). Resilience: A historical review of the construct. *Holistic Nursing Practice*, *18*(1), 3-10. https://doi.org/10.2466/pr0.2003.93.3f.1339
Verplanken, B. (2004). Value congruence and job satisfaction among nurses: A human relations perspective. *International Journal of Nursing Studies*, *41*(6), 599-605. https://doi.org/10.1016/j.ijnurstu.2003.12.011
Virkstis, K., Herleth, A., & Langr, M. (2018). Cracks in the foundation of the care environment undermine nurse resilience. *The Journal of Nursing Administration*, *48*(12), 597-599. https://doi.org/10.1097/NNA.0000000000000687
Vázquez-Calatayud, M., Oroviogoicoechea, C., Saracibar, M., & Pumar-Méndez, M. J. (2017). Transforming care in nursing: A concept analysis. *Contemporary Nurse*, *53*, 217-234. https://doi.org/10.1080/10376178.2016.1260999
Wachs, P., Saurin, T., Righi, A., & Wears, R. (2016). Resilience skills as emergent phenomena: A study of emergency departments in Brazil and the United States. *Applied Ergonomics*, *56*, 227-237. https://doi.org/10.1016/j.apergo.2016.02.012
Wagner, C. (2015). Moral distress as a contributor to nurse burnout. *American Journal of Nursing*, *115*(4). https://doi.org/10.1097/01.NAJ.0000463005.73775.9e
Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the Resilience Scale. *Journal of Nursing Measurement*, *1*(2), 165-178.
Walker, B., Holling, C., Carpenter, S., & Kinzig, A. (2004). Resilience, adaptability and transformability in social-ecological systems. *Ecology and Society*, *9*(2). https://doi.org/10.5751/ES-00650-090205
Walker, L. O., & Avant, K. C. (1995). *Strategies for theory construction in nursing* (3rd ed.). Appleton & Lange.
Walker, L. O., & Avant, K. C. (2011). *Strategies for theory construction in nursing* (5th ed.). Prentice Hall.
Walpita, Y. N., & Arambepola, C. (2020). High resilience leads to better work performance in nurses: Evidence from South Asia. *Journal of Nursing Management*, *28*(2), 342-350. https://doi.org/10.1111/jonm.12930
Wang, L., Tao, H., Bowers, B. J., Brown, R., & Zhang, Y. (2018). Influence of social support and self-efficacy on resilience of early career registered nurses. *Western Journal of Nursing Research*, *40*(5), 648-664. https://doi.org/10.1177/0193945916685712
Wang, T. (2004). Concept analysis of functional status. *International Journal of Nursing Studies*, *41*(4), 457-462. https://doi.org/10.1016/j.ijnurstu.2003.09.004
Wanzer, M., Booth-Butterfield, M., & Booth-Butterfield, S. (2005). "If we didn't use humor, we'd cry": Humorous coping communication in health care settings. *Journal of*

Health Communication, *10*(2), 105-125. https://doi.org/10.1080/10810730590915092

Waugh, C. E., & Koster, E. H. W. (2014). A resilience framework for promoting stable remission from depression. *Clinical Psychology Review*, *41*, 49-60. https://doi.org/10.1016/j.cpr.2014.05.004

Wei, W., & Taormina, R. J. (2014). A new multidimensional measure of personal resilience and its use: Chinese nurse resilience, organizational socialization and career success. *Nursing Inquiry*, *21*(4), 346-357. https://doi.org/10.1111/nin.12067

Wells, R. D., & Schwebel, A. I. (1987). Chronically ill children and their mothers: Predictors of resilience and vulnerability to hospitalization and surgical stress. *Journal of Developmental and Behavioral Pediatrics*, *18*, 83-89.

Werner, E. E., & Smith, R. S. (1982). *Vulnerable, but invincible : A longitudinal study of resilient children and youth*. McGraw-Hill.

Whittemore, R., & Knafl, K. (2005). The integrative review: Updated methodology. *Journal of Advanced Nursing*, *52*(5), 546-553. https://doi.org/10.1111/j.1365-2648.2005.03621.x

Williams, C. (2013). The glass escalator, revisited: Gender inequality in neoliberal times. *Gender and Society*, *27*(5), 609-629. https://doi.org/10.1177/0891243213490232

Williams, J., Hadjistavropoulos, T., Ghandehari, O. O., Malloy, D. C., Hunter, P. V., & Martin, R. R. (2016). Resilience and organisational empowerment among long-term care nurses: Effects on patient care and absenteeism. *Journal of Nursing Management*, *24*(3), 300-308. https://doi.org/10.1111/jonm.12311

Wilson, J. (1963). *Thinking with concepts*. Cambridge University Press.

Windle, G., Bennett, K. M., & Noyes, J. (2011). A methodological review of resilience measurement scales. *Health and Quality of Life Outcomes*, *9*(1), 8. https://doi.org/10.1186/1477-7525-9-8

World Health Organisation. (2013). A universal truth: No health without a workforce. https://www.who.int/workforcealliance/knowledge/resources/hrhreport2013/en/

World Health Organisation. (2016). Global strategic directions for strengthening nursing and midwifery 2016-2020. https://www.who.int/hrh/nursing_midwifery/global-strategic-midwifery2016-2020.pdf

World Health Organisation. (2020). State of the world's nursing 2020: Investing in education, jobs and leadership. https://www.who.int/publications/i/item/9789240003279

Wu, L., Tan, Y., & Liu, Y. (2017). Factor structure and psychometric evaluation of the Connor-Davidson Resilience Scale in a new employee population of China. *BMC Psychiatry*, *17*(1). https://doi.org/10.1186/s12888-017-1219-0

Xie, Y., Li, P., Zuo, X., & Li, M. (2016). The psychometric evaluation of the Connor-Davidson Resilience Scale using a Chinese military sample. *PLoS One*, *11*(2), e0148843. https://doi.org/10.1371/journal.pone.0148843

Younas, A., Pedersen, M., & Durante, A. (2020). Characteristics of joint displays illustrating data integration in mixed-methods nursing studies. *Journal of Advanced Nursing*, *76*(2), 676-686. https://doi.org/10.1111/jan.14264

Youssef, C. M., & Luthans, F. (2007). Positive organizational behavior in the workplace. *Journal of Management*, *33*(5), 774-800. https://doi.org/10.1177/0149206307305562

Yu, F., Cavadino, A., Mackay, L., Ward, K., King, A., & Smith, M. (2020). Physical activity and personal factors associated with nurse resilience in intensive care units. *Journal of Clinical Nursing*, *29*(17-18), 3246-3262. https://doi.org/10.1111/jocn.15338

Yu, M., & Lee, H. (2018). Impact of resilience and job involvement on turnover intention of new graduate nurses using structural equation modeling. *Japan Journal of Nursing Science*, *15*(4), 351-362. https://doi.org/10.1111/jjns.12210

Zander, M., Hutton, A., & King, L. (2013). Exploring resilience in paediatric oncology nursing staff. *Collegian*, *20*, 17-25. https://doi.org/10.1016/j.colegn.2012.02.002

Zheng, Z., Gangaram, P., Xie, H., Chua, S., Ong, S. B. C., & Koh, S. E. (2017). Job satisfaction and resilience in psychiatric nurses: A study at the Institute of Mental Health, Singapore. *International Journal of Mental Health Nursing*, *26*(6), 612-619. https://doi.org/10.1111/inm.12286

Zito, M., Cortese, C. G., & Colombo, L. (2016). Nurses' exhaustion: The role of flow at work between job demands and job resources. *Journal of Nursing Management*, *24*(1), E12-E22. https://doi.org/10.1111/jonm.12284

Zuckerman, M. (1999). *Vulnerability to psychopathology: A biosocial model*. American Psychological Association.

Appendix One – Phase One Questionnaire

Resilience Survey

Please answer each question fully. All answers are confidential.

Age (please complete)	

	Full Time	Part Time
Employment	☐	☐

	TAFE or Hospital certificate Enrolled Nursing	Bachelor of Nursing	Post Graduate Certificate	Post Graduate Diploma	Masters	Doctoral Degree
Highest Nursing Qualification Held	☐	☐	☐	☐	☐	☐

	Enrolled Nurse	Registered Nurse	Registered Midwife	Dual Registered Nurse/Midwife
Type of Registration Held	☐	☐	☐	☐

Total years of experience as a Nurse (please complete)	

Years of employment at SJGSH as a Nurse (please complete)	

Please turnover.

Office Use _____

Current Area of Practice at SJGSH? (Please circle your **primary** area of practice) If you work in more than one area please select your predominate area of practice **only**.	Medical Unit Surgical Unit Intensive Care Unit Coronary Care Unit Oncology Palliative Care Theatres/DSU/SSU Paediatrics Neonatal Unit Endoscopy Other (Please State) _____
What clinical areas have you worked in previously? (Please list)	

From memory, which of the following are the **five** core values of St John of God? (Please circle)	Accountability Excellence Hospitality Commitment Respect	Compassion Justice Impact Courage Knowledge

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The hospital values are very important.	☐	☐	☐	☐	☐

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I agree with the values of the hospital.	☐	☐	☐	☐	☐

Thank you for completing the first part of the survey. Please continue onto the Connor Davidson Resilience Scale.

Office Use _____

Appendix Two – Study Site Ethical Approval

ST JOHN OF GOD Health Care

Human Research Ethics Committee

Level 3, St John of God House
177-179 Cambridge St
WEMBLEY WA 6014
T: (08) 9382 6940
E: ethics@sjog.org.au

16 June 2017

Ms Alannah Cooper
12 Salvado Road
SUBIACO WA 6008

Dear Ms Cooper,

Re: Exploring Resilience in Western Australian Nurses Working in a Faith Based Organisation: A Mixed Methods Study

(Our ref: 1182)

Thank you for forwarding the above low risk study for review by the St John of God Health Care (SJGHC) Human Research Ethics Committee ("the Committee").

I am pleased to advise that the Committee has granted ethical approval of your study as satisfying the ethical requirements under the National Health and Medical Research Council's National Statement on Ethical Conduct in Human Research (NHMRC, 2007) ("the National Statement"). This ethical approval is inclusive of the documents included in your submission letter dated 30 May 2017. The Committee congratulate you on your well-written proposal.

The HREC approval period is from 16 June 2017 to 26 July 2019. Should an extension of this timeframe be required, you must seek continued approval from the Committee before the expiry of this time period.

In accordance with NHMRC guidelines, the Participating Site/ Principal Investigator is responsible for:

1. Notification to the HREC of any adverse events or unexpected outcomes that may affect the continuing ethical acceptability of the study;
2. The submission of any proposed amendments to the study or previously-approved documents;
3. The submission of an annual progress report for the duration of the study which is due on the anniversary of HREC approval;
4. Reporting of any protocol deviations or violations, together with details of the procedure(s) put in place to ensure the deviation or violation does not recur;
5. Notification and reason for ceasing the study prior to its expected date of completion (if applicable);
6. The submission of a final report and translation of results (including publications) upon completion of the study.

../2

Appendix Three – University Reciprocal Ethical Approval

Curtin University

Office of Research and Development

GPO Box U1987
Perth Western Australia 6845

Telephone +61 8 9266 7863
Facsimile +61 8 9266 3793
Web research.curtin.edu.au

26-Jun-2017

Name: Gavin Leslie
Department/School: School of Nursing, Midwifery and Paramedicine
Email: G.Leslie@curtin.edu.au

Dear Gavin Leslie

RE: Reciprocal ethics approval
Approval number: HRE2017-0402

Thank you for your application submitted to the Human Research Ethics Office for the project Exploring Resilience in Western Australian Nurses Working in a Faith Based Organisation: A Mixed Methods Study.

Your application has been approved by the Curtin University Human Research Ethics Committee (HREC) through a reciprocal approval process with the lead HREC.

The lead HREC for this project has been identified as St John of God Health Care Human Research Ethics Commitee.

Approval number from the lead HREC is noted as 1182.

The Curtin University Human Research Ethics Office approval number for this project is **HRE2017-0402**. Please use this number in all correspondence with the Curtin University Ethics Office regarding this project.

Approval is granted for a period of one ye ar from **26-Jun-2017** to **26-Jul-2019**. 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
Leslie, Gavin	Supervisor
Brown, Janie	Supervisor
Cooper, Alannah	Student

You must comply with the lead HREC's reporting requirements and conditions of approval. You must also:

- Keep the Curtin University Ethics Office informed of submissions to the lead HREC, and of the review outcomes for those submissions
- Conduct your research according to the approved proposal
- Report to the lead HREC anything that might warrant review of the ethics approval for the project

Appendix Four – Phase One Participant Information Sheet

Dear Caregiver,

You are invited to participate in this research study entitled;

Exploring Resilience in Western Australian Nurses Working in a Faith Based Organisation: A Mixed Methods Study.

The aim of the research is to explore resilience amongst nurses working in a faith based organisation. The objectives of the research are to:

1. To determine resilience levels in the study population.
2. To examine the concept of resilience specific to nurses employed in a faith based organisation.
3. To explore the role the values of the organisation plays in individual resilience.

We invite you to complete the attached survey which should take no longer than 10 minutes to fill in. In recognition of the time the survey will take a chocolate bar and tea bag are enclosed for you to enjoy whilst you complete the survey if you should choose to participate. Please place your completed survey in the enclosed envelope and leave in the survey return box in your department by 13/08/2017.

To note:

Your decision to participate in and submit responses to the survey will be considered as your consent.

Your decision to participate or not participate in this research will in no way impact upon your relationship with St John of God Hospital Subiaco. All responses will be kept confidential, surveys will initially be re-identifiable to the researchers so that reminders can be sent out this record will be destroyed once data collection is completed and you will not be personally identified in any study results or publication of results.

Upon completion of the research a summary of the results and the findings of the overall research will be disseminated to all participants.

This research is being conducted by a SJOG employee as part of a Research Masters degree.

Please do not hesitate to contact myself or my primary supervisor Professor Gavin Leslie via email G.Leslie@curtin.edu.au if you require further information or wish to ask questions regarding the survey.

This research study has the approval of the Human Research Ethics Committees at St John of God Health Care (No:1182) and Curtin University (No:HRE2017-0402). If you have any concerns about this research you can contact Curtin University Human Research Ethics committee by telephone 9266 2784 or hrec@curtin.edu.au or in writing C/- Office of Research and Development, Curtin University of Technology, GPO Box U1987, Perth WA 6845.

Thank you for your time.

Kind Regards

Alannah Cooper
Research Nurse (Nursing & Midwifery Research)
St John of God Subiaco Hospital
E: Alannah.Cooper@sjog.org.au
T: 08 9382 6012

Appendix Five – Phase Two Participant Information Sheet

Participant Information Sheet and Consent Form

You are invited to participate in a research study entitled:

Exploring Resilience in Western Australian Nurses Working in a Faith Based Organisation: A Mixed Methods Study.

The aim of this research is to explore resilience amongst nurses working in a faith based organisation. The objectives of the research are:

1. To determine the resilience levels in the study population
2. To examine the concept of resilience specific to nurses employed in a faith based organisation.
3. To explore the role the values of the organisation plays in individual resilience.

This study is being conducted by a SJOG employee as part of a Research Masters degree. The study is split in two distinctive phases in the first phase quantitative data was collected via surveys. This information sheet relates to the second phase of the study in which qualitative data will be collected via focus group interviews to explore resilience in nurses.

What will my participation involve?
Taking part in a focus group interview which will consist of six to eight participants. The focus group will last for approximately one hour and will be conducted by the primary researcher who will guide the focus group through a discussion of resilience in nursing. The focus groups will be held at St John of God Subiaco hospital in a private meeting room and refreshments will be provided. All of the data collected will be de-identified to ensure confidentiality is maintained for all nurses who choose to participate.

What are the benefits?
There may not be any direct benefit to you at this point, however as a result of this study we hope to gain a better understanding of resilience in nursing and factors which may affect it.

Are there any risks?
This research represents low risk. The St John of God Health Care Ethics Committee (No:1182) and Curtin University Human Research Ethics Committee (No:HRE2017-0402) have given ethical approval for the conduct of this study. Your privacy and confidentiality will be protected at all times. Any results from the study will not be published, presented or disclosed to other people in a way that will identify you.

Voluntary participation and if you change your mind
Taking part in this study is entirely voluntary. If you decide you do not wish to take part this will not affect your relationship with St John of God Subiaco hospital in anyway. If you do take part, the data collected during the focus group interviews will be de-identified it will therefore not be possible to withdraw data after it has been collected.

Further information
If you would like more information about the study or have any questions, please contact the primary researcher Alannah Cooper on 08 9328 6012 or e:alannah.cooper@sjog.org.au or her primary supervisor Professor Gavin Leslie e:G.Leslie@curtin.edu.au

For independent advice, or for any complaints, do not hesitate to contact Curtin University Human Research Ethics committee on 9266 2784 or hrec@curtin.edu.au

PICF 27/03/2017 Version 1

Appendix Six – Phase Two Consent Form

Consent Form

Title of Study:

Exploring Resilience in Western Australian Nurses Working in a Faith Based Organisation: A Mixed Methods Study.

This research study has the approval of the Human Research Ethics Committees at St John of God Health Care (No: 1182) and Curtin University (No: HRE2017-0402).

Researchers:

Alannah Cooper, Professor Gavin Leslie & Dr Janie Brown

1. I confirm that I have read and understood the Participant Information and Consent Form dated 27/03/2017 version 1 for the above study and have had the opportunity to ask questions and all of these have been answered in a way I understand.
2. I understand that my participation is voluntary. I may refuse to take part in this study without my relationship with St John of God Subiaco hospital being affected. There is no penalty. My decisions do not affect my continuing relationship with St John of God Subiaco hospital.
3. I understand that confidentiality will be maintained and that I will not be named in any reports or publications made. I understand that as all data collected for the study will be de-identified it will not be possible to withdraw data collected from the study. I agree to take part in the above study.

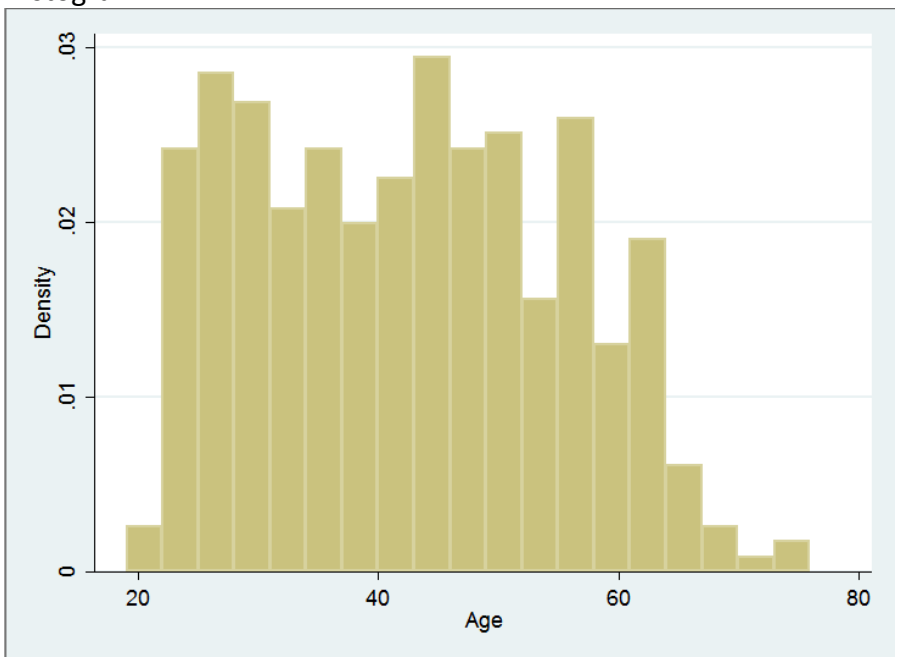
_____	_____	_____
Name of participant	Date	Signature

_____	_____	_____
Name of Researcher	Date	Signature

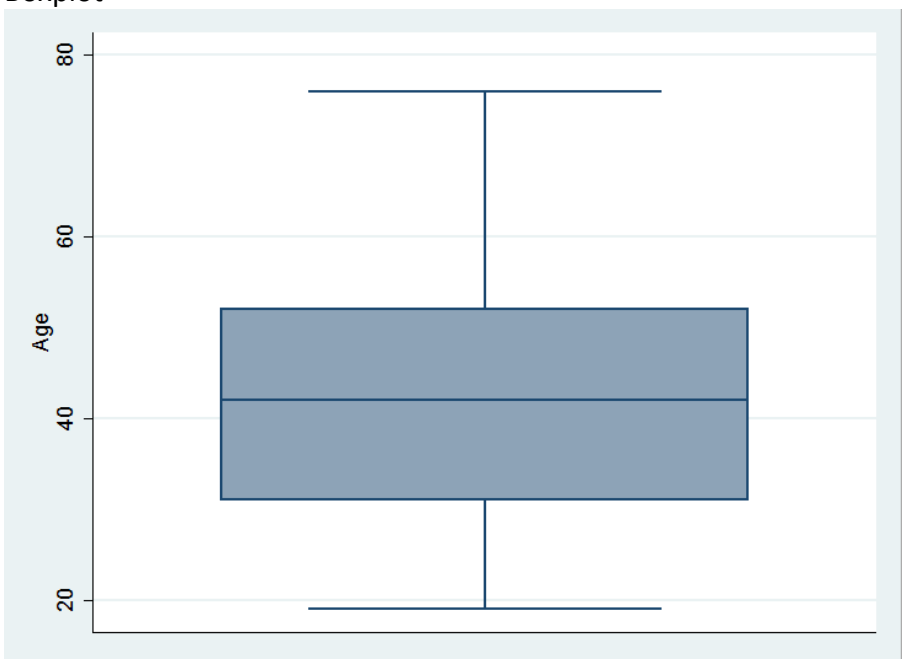
Appendix Seven – Outputs for Tests of Distribution

Age

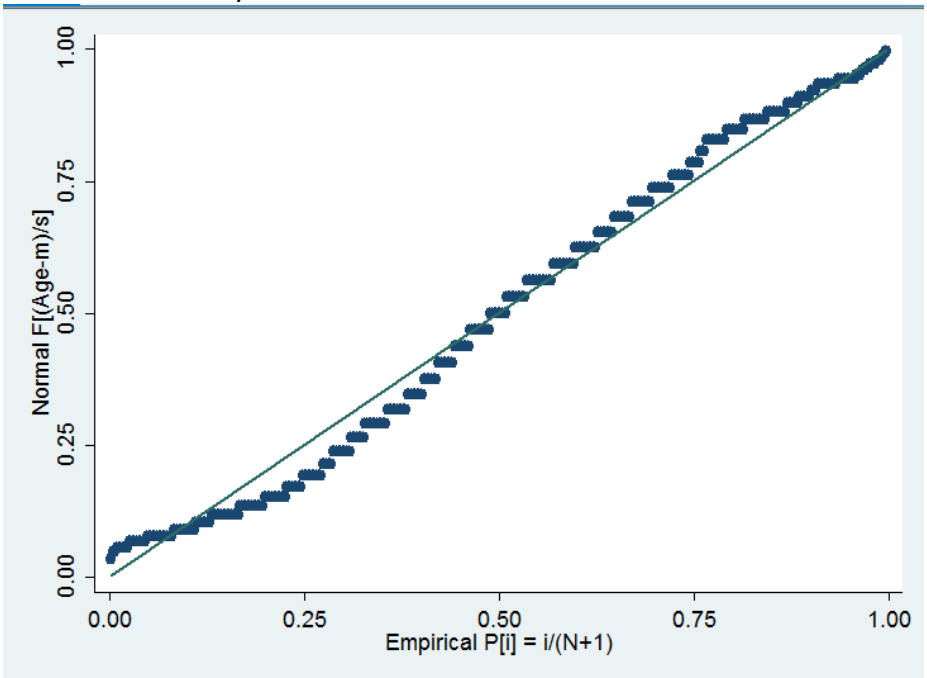
Histogram



Boxplot



Normal Probability Plot

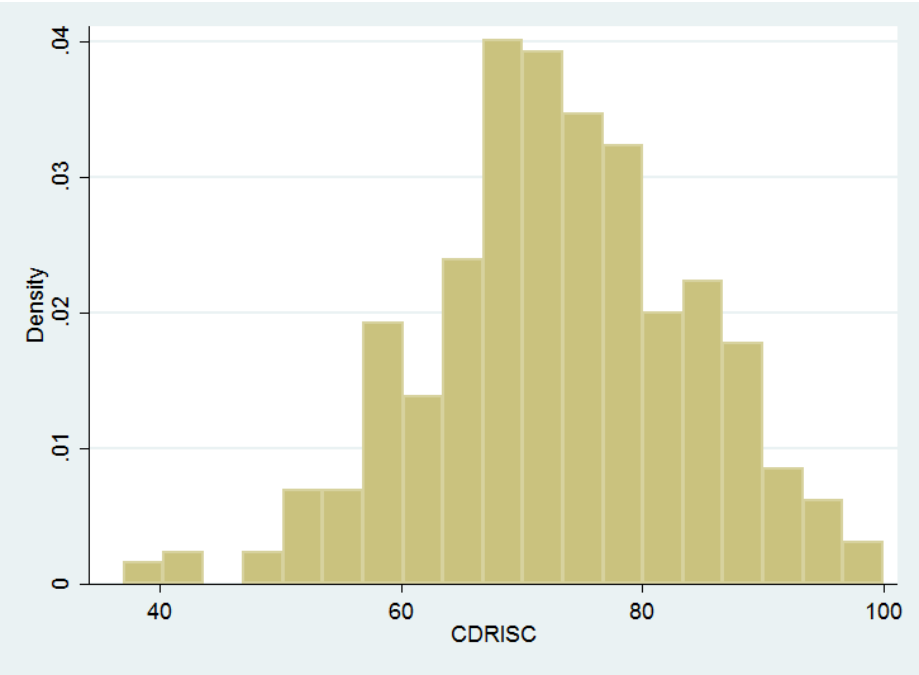



```
. summarize Age, detail

                            Age
-------------------------------------------------------------
      Percentiles      Smallest
 1%           22            19
 5%           24            21
10%           25            21       Obs                 385
25%           31            22       Sum of Wgt.         385

50%           42                     Mean           42.01299
                      Largest       Std. Dev.      12.66361
75%           52            68
90%           59            70       Variance       160.367
95%           62            73       Skewness       .1775213
99%           68            76       Kurtosis       2.02574

.
```

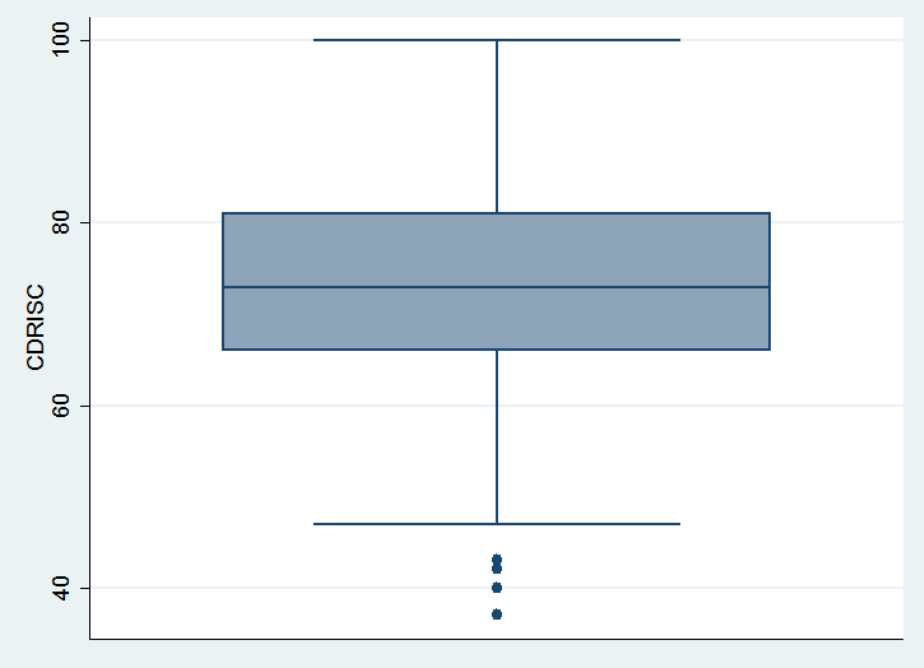
Kurtosis -3 = -0.97426 is within (-1, 1) within range of normal distribution. Skewness is .1775213 is within (-1, 1) so within range of normal distribution.

CD-RISC

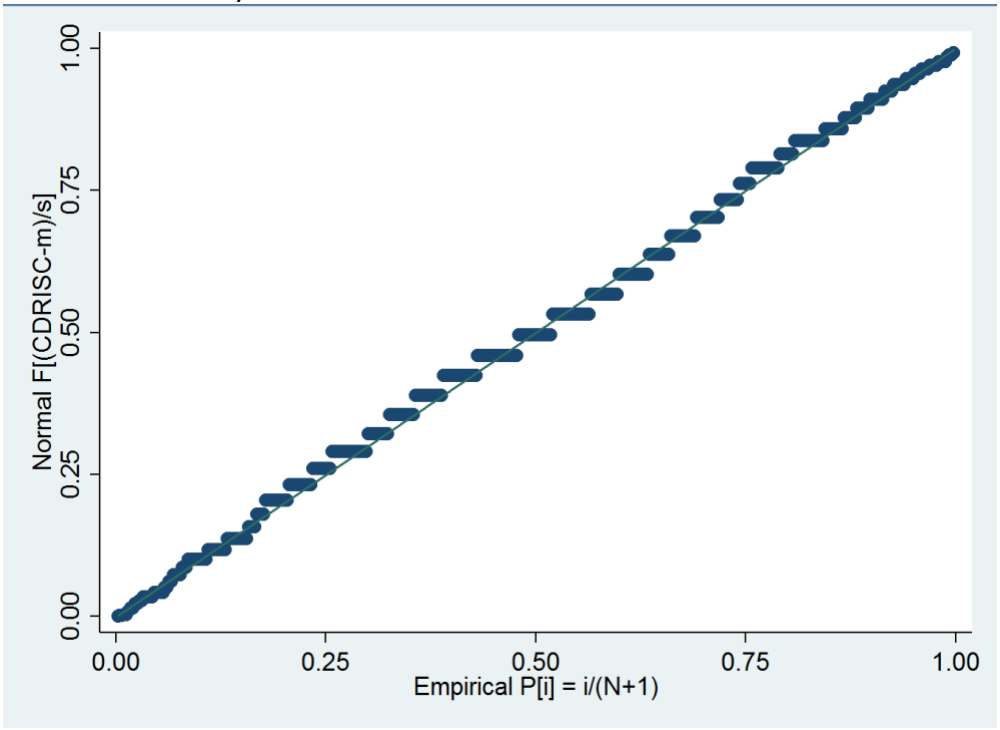
Histogram



Boxplot



Normal Probability Plot

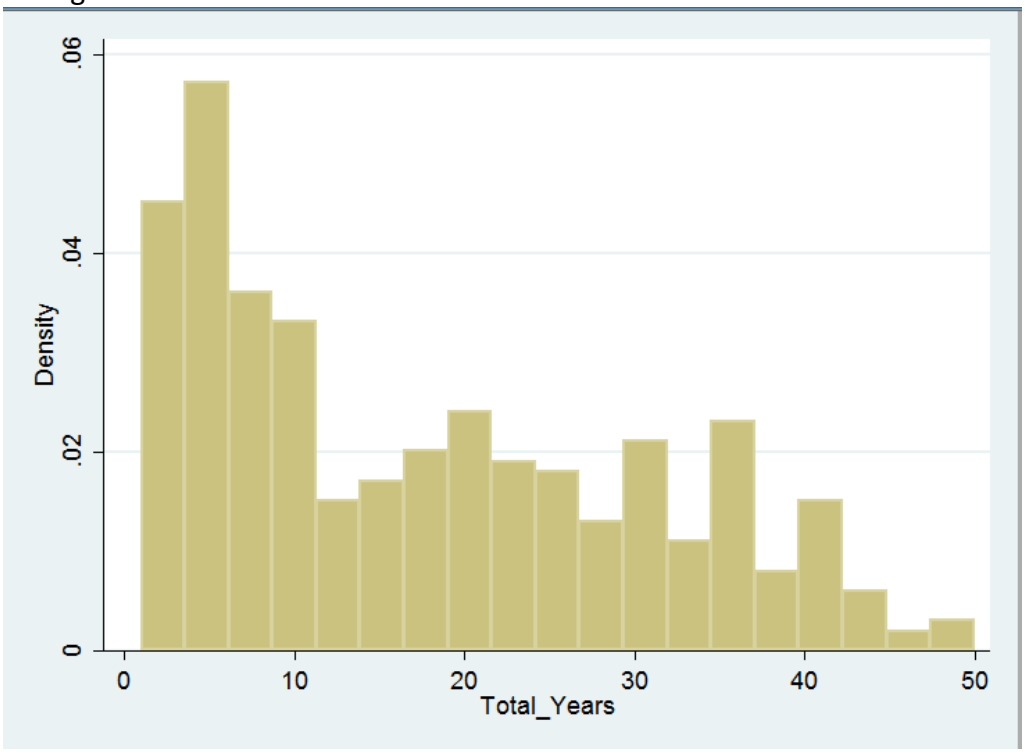



```
. summarize CDRISC, detail

                            CDRISC
-------------------------------------------------------------
      Percentiles      Smallest
 1%           43            37
 5%           54            40
10%           59            42       Obs                 391
25%           66            43       Sum of Wgt.         391

50%           73                     Mean           73.11765
                      Largest        Std. Dev.      11.07371
75%           81            97
90%           88            98       Variance       122.6271
95%           91            98       Skewness      -.1953609
99%           97           100       Kurtosis       3.026382

.
```

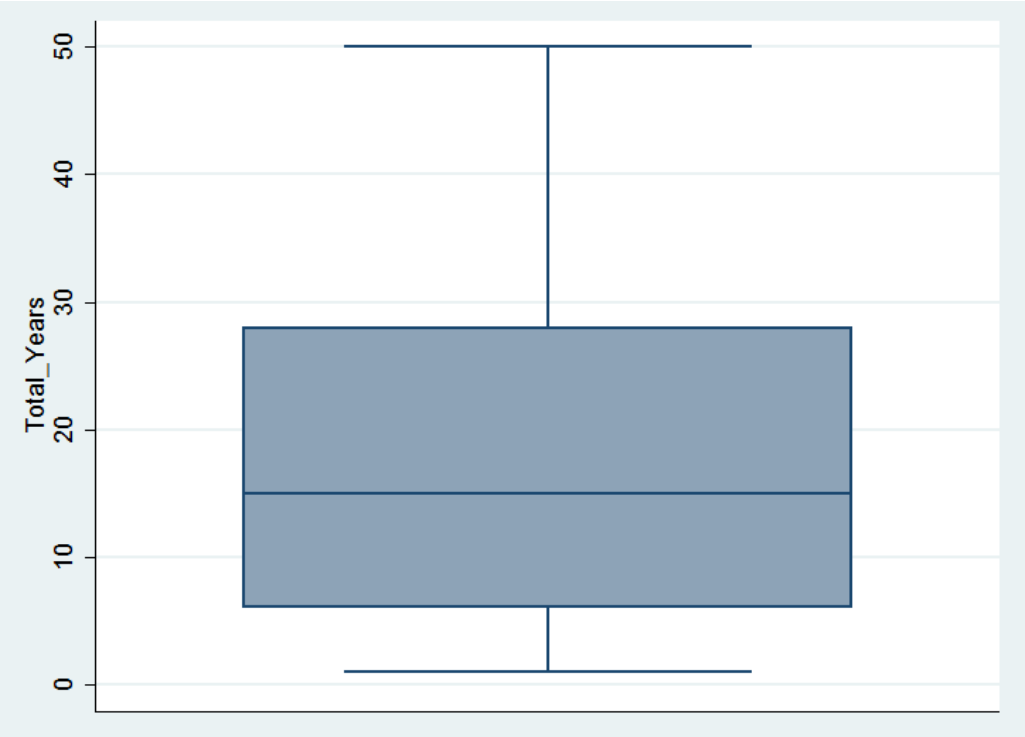
Skewness -.1953609 within normal range (-1,1). Kurtosis -3 0.026382 within range (-1,1)

Total years of experience

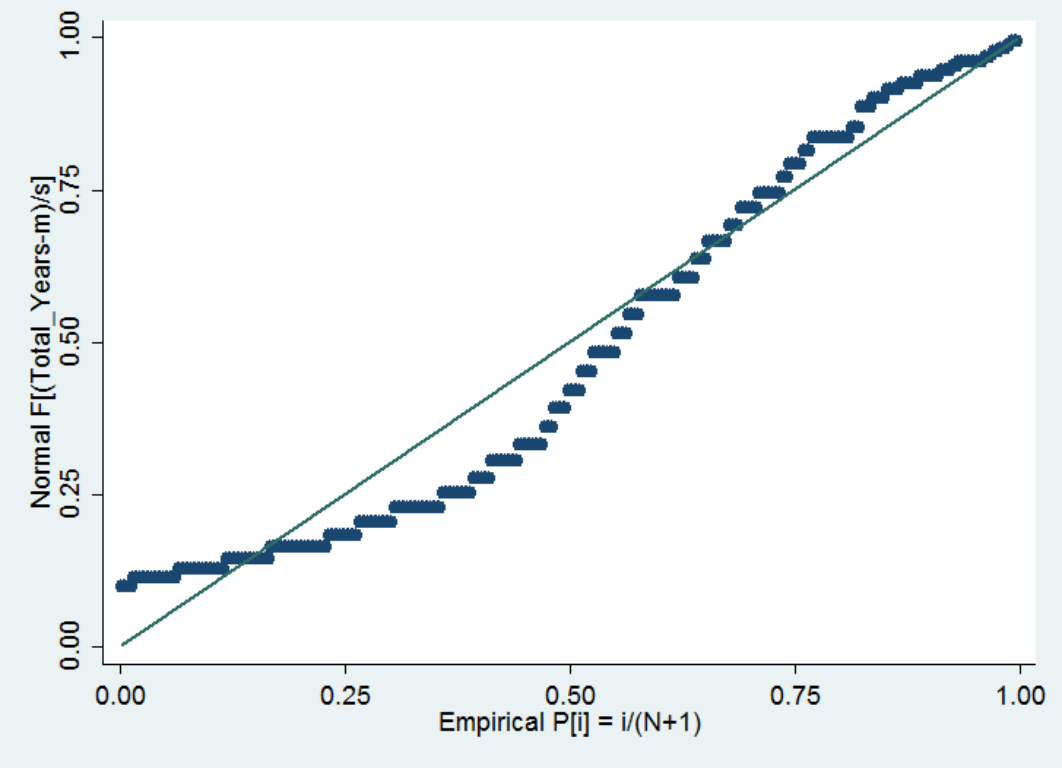
Histogram



Boxplot



Normal probability plot

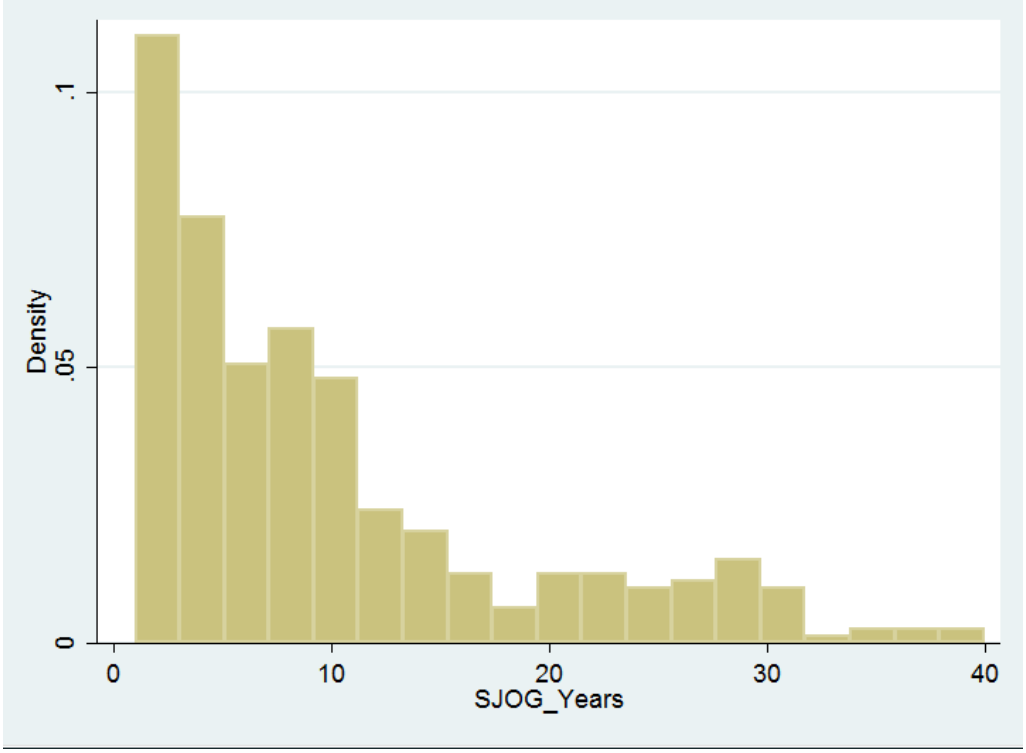



```
. summarize Total_Years, detail

                        Total_Years
-------------------------------------------------------------
      Percentiles      Smallest
 1%            1              1
 5%            2              1
10%            3              1       Obs                 386
25%            6              1       Sum of Wgt.         386

50%           15                      Mean           17.55959
                      Largest       Std. Dev.      12.80758
75%           28             47
90%           37             49       Variance       164.0341
95%           40             49       Skewness       .5370424
99%           47             50       Kurtosis       2.076669

.
```

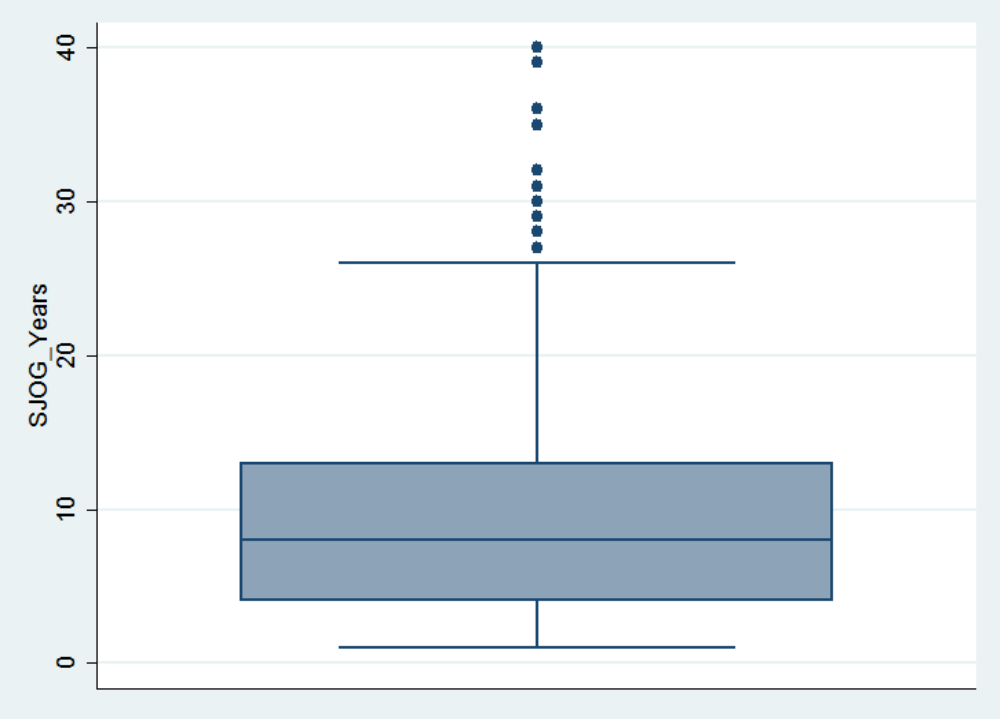
Skewness .53700424 so between (-1, 1). Kurtosis -3 0.923331 so between (-1, 1).

Total years of experience at study organisation

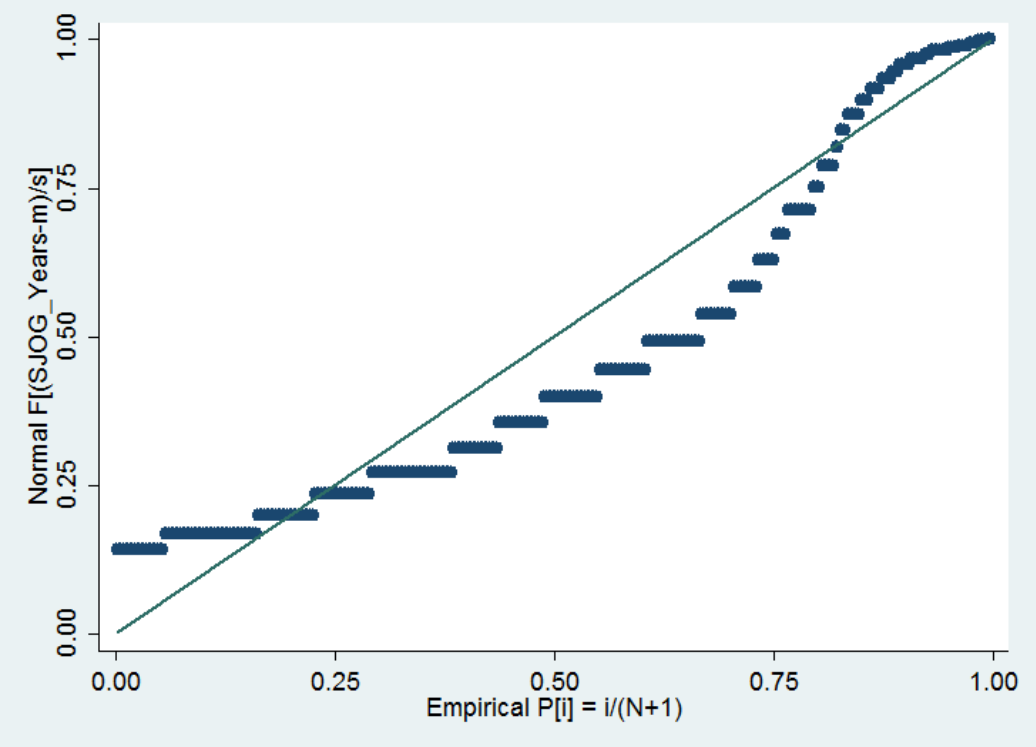
Histogram



Boxplot



Normal probability plot




```
. summarize SJOG_Years Total_Years, detail
```

SJOG_Years

Percentiles		Smallest		
1%	1	1		
5%	1	1		
10%	2	1	Obs	385
25%	4	1	Sum of Wgt.	385
50%	8		Mean	10.18701
		Largest	Std. Dev.	8.569346
75%	13	36		
90%	25	36	Variance	73.43369
95%	28	39	Skewness	1.248085
99%	36	40	Kurtosis	3.787016

Skewness 1.248085 outside of normal range (-1,1). Kurtosis -3, 0.787016 within range (-1,1)

Appendix Eight – Full Thematic Map