School of Public Health

Towards the Prevention of long-duration workers compensation claims- Pre-claim intervention and strategy

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DECLARATION

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

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

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Date : 11 | 11 | 2015

ABSTRACT

This research was conducted to investigate the incidence of long-duration workers' compensation claims and more specifically claims that appear to be minor yet result in significant claims, referred to as Adversely Disproportionate Outcomes [ADO's]. Reviews show that within all workers' compensation systems worldwide, this small group of claims represent the majority of costs within systems.

Closer investigation of these claims reveals numerous individual, organisational and psychosocial factors that existed prior to the onset of the illness and injury, rather than illness/injury that prevent the injured employee from returning to the workforce. Traditional methods of prevention lie in post injury intervention, however the question needs to be asked if the worker is already injured is it too late? This research looked to take an innovative step forward and explore methods of preventing long-duration claims before they even occur.

The aim of this research was to examine retrospectively individual, organisational and psychosocial factors to identify if these contributed to a worker's compensation claim becoming long in duration. The research was undertaken as a case control study with the cases being workers with long-duration claims and the controls being injured workers who made a workers' compensation claim but who returned to work within 60 days.

This research was conducted over a two year period with a survey questionnaire distributed to ill or injured employees who had made a workers' compensation claim. These questionnaires were distributed through two registered insurers in the Western Australian Workers' Compensation System, large to medium employers, medical providers and the Seacare Authority. Questionnaires were also provided to employers of ill or injured employees through the same distribution method. Participating respondents were asked to comment on the presence or existence of the individual, organisational and psychosocial factors that existed prior to the workplace illness or injury occurring.

Participating respondents were employees who sustained an illness or injury during the participating period who were classified as a:
Short-duration claim [SDC] – whose illness or injury did not incur time of 60 days or greater to return to work;
Long-duration claim [LDC] – whose illness or injury required greater than 60 days to return to work.

Employers of ill or injured SDC or LDC claimants were also reviewed to establish what if any of the pre-determined individual, organisational and psychosocial factors existed prior to the date of injury. Both employees and employers responses were reviewed to provide comparison between responses and gain understanding of factors that contribute to claims becoming long in duration.

Statistical tests employed in this case-control study were the summary of descriptive, Z-test of proportions, Independent T-tests of continuous data, Chi-square analysis (Pearson and Fisher's Exact Test), Spearman's correlation, non-parametric comparisons of distributions, and binary logistic regression. The level of statistical significance for all variables was reported for both the 5% and 10% level in this research.

Conclusions reached based on the findings of this research are that individual, organisational and psychosocial factors identified are predictors of long-duration claims and more importantly the Green Flag Model invented as part of this research is a predictor of LDC outcomes. A model of management has been created from the findings of the literature review and the research findings that will provide organisations a path way to use to assist with the reduction and prevention of LDC outcomes.

This research encourages and calls for further research to be conducted on this subject to build on the findings of this research to provide a greater level of knowledge and information to enhance further the body of knowledge on the topic of the prevention of long-duration workers' compensation claims.

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To the future and finding a better way to prevent work related ill-health and injuries and more importantly the impact this has on to those who will benefit from the prevention of work related ill-health and injuries.

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TOWARDS THE PREVENTION OF LONG-DURATION CLAIMS – PRE-CLAIM INTERVENTION AND STRATEGY

1.0: Introduction

1.1 Background to the study.

It is estimated that the total cost of workplace injury and illness to the Australian economy in the 2008-09 financial year was $60.6 billion which represented 4.8% of Australia's Gross Domestic Product [GDP] (Safe Work Australia, 2014c). Safe Work Australia compares this to the 2000-01 period where the total cost was $34.3 billion (Safe Work Australia, 2012b). These costs are indicative of the growing and substantial strain to the Australian economy and associated stakeholders of workplace injuries and illnesses.

A study in 1995 found that only 25% of the total costs of work-related injury and disease were due to the direct costs of work related injuries for which workers' compensation insurance claims cover (Safe Work Australia, 2012b). The remaining 75% of costs was accounted for by indirect costs such as lost productivity, loss of income and reduced quality of life.

This study explored specifically the injuries and illnesses covered by workers' compensation insurance, however it is believed that the discussion and literature reviewed will also be of relevance to injuries and illnesses that workers' compensation schemes do not cover or include, such as those of self-employed people (Burton, 2010). How workers' compensation systems provide a fair and equitable system for workers receiving the benefits and the employers who pay the benefits has been the subject of considerable debate and scrutiny.

Recognition of the need for compensation for specific injury to workers' body parts dates back as far as 2050 BC (Guyton, 1999; Harger, 2007). The relevant government bodies and workers' compensation schemes must determine the

complex competing demands for resources made by a variety of interest groups and determine policy to meet the requirements of all stakeholders including, but not limited to, injured workers, their families and acquaintances, employers, medical providers, insurers and unions (Dembe, 2003).

On the other hand insurers and employers, in part motivated by the desire to maintain and increase profit, seek to protect themselves from unreasonable and ongoing expenditures that arise when high cost claims are made. Those high cost claims invariably involve employees who suffer from long-term illness or injury. Consequently workers' compensation systems are characterised by tension between what appear to be competing aims.

Historical reviews of all workers' compensation systems worldwide show a small group of claims representing the majority of costs within systems (Bernacki *et al*, 2007; Schultz *et al.* (2002); Schultz *et al.* (2005); Safe Work Australia, 2012b; The IUA/ABI Rehabilitation Working Party, 2004; WorkCover WA, 2013). Closer investigation of these claims reveals numerous individual, organisational and psychosocial factors, existing prior to the onset of the illness and injury, rather than the actual illness/injury preventing the injured employee from returning to the workforce (Bernacki et al., 2007; Schultz *et al.* (2002); Schultz *et al.* (2004), Schultz *et al.* (2005); Schultz *et al.* (2007), Safe Work Australia, 2012b; The IUA/ABI Rehabilitation Working Party, 2004; WorkCover WA, 2013).

This research specifically explored the phenomena and prevalence of long-duration claims in Western Australia. Research and data has also been drawn from national and international studies to assist in determining where possible, those pre-incident factors that lead to work related injury and illness and subsequent long-duration claims.

"Long-duration claims [LDC] are commonly defined as workers' compensation claims which involve 60 days/shifts or more off work" (WorkCover WA, 2011a, p. 4). Although these claims represent only a minor proportion of total claims within a workers' compensation scheme, these claims account for the majority of costs

(WorkCover WA, 2014). Reviews of workers' compensation literature highlight a typical reporting pattern of 20% of workers on long-term claims accounting for 80% of workers' compensation scheme costs (WorkCover WA, 2014). As a result, "LDC have been identified as a focal point for the management of costs within workers' compensation schemes" (WorkCover WA, 2011a, p. 4).

In Western Australia between 2009/10 and 2012/13 LDC accounted for 83.1% of all workers' compensation costs while making up only 26.6% of all workers' compensation lost time claims (WorkCover WA, 2014). The number of LDCs in Western Australia increased by 29% (of all claims with lost time) between 2004-5 and 2009-10. The costs associated with long-duration claims during the same period increased by 26%, $342 million in 2004/05 to $432 million in 2009/10 (WorkCover WA, 2011a). This is on the backdrop of claims numbers decreasing in numbers of claims lodged throughout this period. This is demonstrated in Figure 1. WorkCover WA has not released a further long-duration claim report, however the 2014 annual report stated that total claim costs increased by 6% due to a higher number of loss time claims, especially long-duration claims (WorkCover WA, 2014).

Insurer received year	Lost time		60+ days lost		60+ days proportions	
	Claims	Cost $m	Claims	Cost $m	Claims	Cost $m
2004/05	18,824	417.4	3,360	342.2	18%	82%
2005/06	18,061	417.6	3,465	341.6	19%	82%
2006/07	18,030	439.3	3,569	353.9	20%	81%
2007/08	18,146	532.3	3,980	440.3	22%	83%
2008/09	17,599	562.5	4,185	466.6	24%	83%
2009/10p	16,612	527.7	4,342	431.9	26%	82%

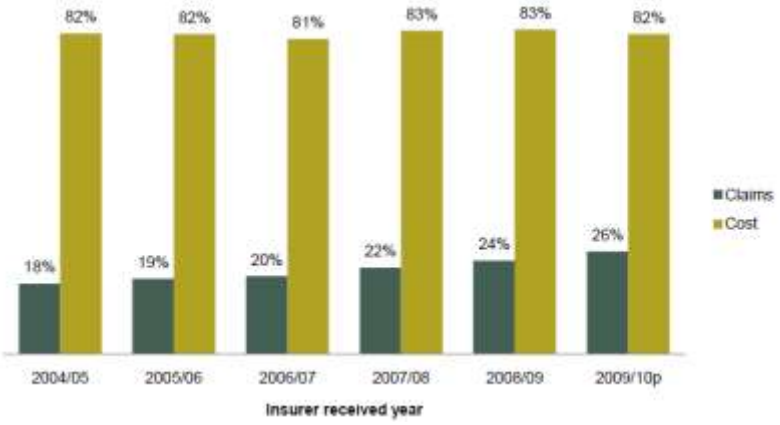


Figure 1: Costs and prevalence of LDCs from 2004/05 to 2009/10 (WorkCover WA,

2011a, p. 8).

An actuarial review by Price Waterhouse Coopers (PWC) in December 2013 noted that LDCs made up 18% of all workers' compensation claims in Western Australia (both those claims with or without lost time) and had increase from 12% the previous two year period (Price Waterhouse Coopers, 2014).

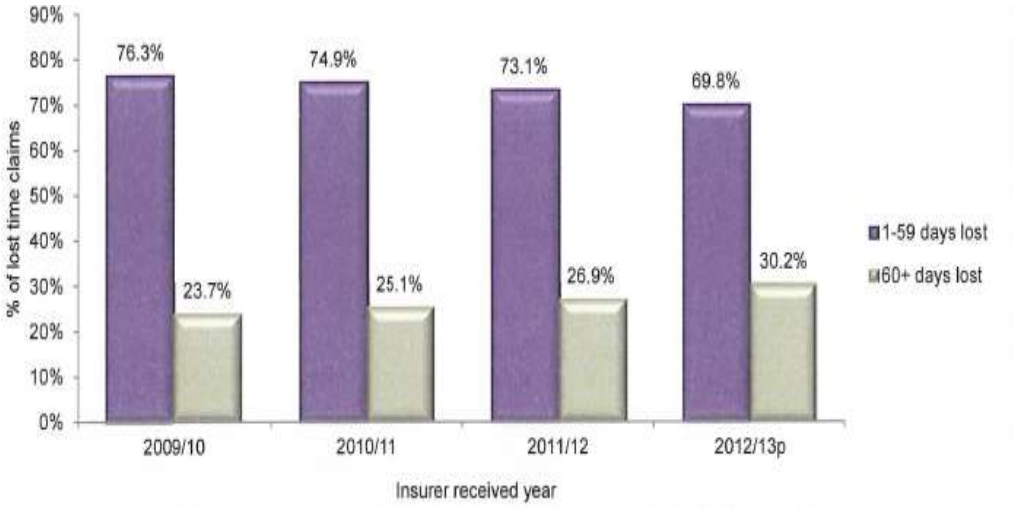


Figure 2: Percentage lost time claims by days (WorkCover WA, 2014, p. 14)

Figure 2 demonstrates the history of long-duration claims within the Western Australian Workers' Compensation System and that LDC are an increasing problem requiring a solution (WorkCover WA, 2014).

From 2009 to 2010 to 2012 to 2013 26.6% of claims were LDCs and accounted for 83.1% of costs ($600.8 million) (WorkCover WA, 2014). In Western Australia in 2012-13 (WorkCover WA, 2014) there were 4,658 workers with LDCs. In 2009-2010, the 55-50 age group had the highest average cost of a long-duration claim for Western Australian workers with this being 121,297 (WorkCover WA, 2011a). In 2009/10 the mining industry had the highest average long-duration workers' compensation claims with an average cost of $143,781 per employee (WorkCover WA, 2011a). WorkCover WA has not released further long-duration reports since

the 2011 version and Safe Work Australia's last research on LDCs was 2012.

Nationally, over the period from 2000-01 to 2008- 09 the average proportion of all claims with 60 or more working days lost accounted for 12% of the number of claims, but 75% of the total payments (Safe Work Australia, 2012b) highlighting Western Australia's higher than the national average proportion of LDCs (18%), as reported by Price Waterhouse Cooper (2014).

Despite the implementation of best practice techniques to prevent claims from becoming long in duration, LDCs are a significant and worsening problem for Western Australia and for other national schemes. Solutions to reduce both the economic and social costs related to LDCs must be found.

1.2 Introduction to 'Flags' Model' and research outcome benefits

Increasing costs within workers' compensation systems within Australia (and more specifically Western Australia) are seen to be multi-factorial in nature, with a significant proportion of this increase attributable to the escalating number of claims were injured employees are off work for extended periods of time, known as Long-duration Claims (LDCs) (WorkCover WA, 2011a).

The following factors have been identified by a range of authors to be potential causes for the development of LDCs:

Table 1: Factors Considered to be Potential Causes for LDCs (Cotton, 2009; Shaw et al, 2005; Shaw et al, 2009).

Individual factors that include: • Age; • Place of Birth; • Family commitments; • Health status; and • Cultural background.
Organisation Factors including: • Terms of employment such as permanent, part-time, casual and contracts included short term or fixed contract which may result in job insecurity; • Structure of the role to encompass job autonomy, good employee engagement and job satisfaction; • The role of supervision and organisational practices.
Psychosocial Factors including: • Poor health and wellbeing; • Job stress; • Workplace social support or dysfunction; • Job dissatisfaction; • Negative work experiences; • Lack of supervisor and colleague support; • Role conflict and ambiguity; • Perceived high workload; • Low job control; and • Group interpersonal conflict.

Researchers such as Cotton (2006) and Shaw *et al.* (2005) opine that if these factors coalesce and are not adequately addressed prior to an injury or incident occurring, the injury/claim has the potential to develop into long term disability that would result in a LDC, regardless of post-claim intervention. These pre-injury/claim variables are now more prevalent given the changing nature of the workforce. Table 2 lists the characteristics of the changing nature of the workforce.

Table 2: Characteristics of the changing nature of the workforce (Abhayaratna & Lattimore, 2006; Henson, 2009)

Characteristics of Changing Workforce	
1	Changing nature and characteristics of the workforce;
2	Emergence of contract labour, upsurge of labour hire employment and transient nature of employment;
3	Economic climate including prospering and downturns;
4	Labour shortage;
5	High job turnover and limited periods of tenure of employees;
6	The promotion of managers / supervisors who are promoted for their technical skill and not for their ability to manage employees; and
7	Poor or no management of HR / Industrial Relations issues, which also results from a decline of the HR function and staff in organisations.

If the worker is already injured is it too late? Can a 'Flag Model' be adopted to assist in the prevention of LDCs? This model would need to consider a range of individual, organisational and psychosocial factors to ensure prevention rather than the need for cure? The author proposed that developing a pre-incident model of intervention based on the 'Flag Model' would ensure better outcomes, reduced claim durations and a reduction in costs incurred.

The innovative aspect of this research was to investigate the impact of individual, organisational and psychosocial factors (flags) that are present **prior** to an employee experiencing work related illness or injury. In addition the research investigated how those flags contributed to illness or injury in the workplace, which subsequently prevented those ill or injured workers from returning to work. The potential multiple benefits of preventing and reducing the effects of LDCs are significant for all key stakeholders to the workers' compensation process.

In considering the effect of work related illness or injury on key stakeholders De Souza & Frank (2005) noted that ill or injured employees will be spared the inconvenience, pain and suffering associated with having an illness or injury that leads to an LDC. In terms of family and social environment, the ill or injured employees (who have developed pain) often respond negatively to their immediate family and social network. This can place considerable strain and pressure on relationships with family members (Frank et al., 2005). This (pain) experience is often accompanied by feelings of hopelessness and helplessness, which may develop into depression (Frank et al., 2005; Waxman, Tripp, & Flamenbaum, 2008).

The emotional distress caused by pain is known to be one of the most disruptive aspects of living with the illness and injury (Frank et al., 2005; Sullivan, Feuerstein, Gatchel, Linton, & Pransky, 2005). Research into the impact of lower back pain patient's limitations specific to their family and social roles indicates that patients with chronic lower back pain experience significant restrictions in activities, such as, parenting, sexual relationships and participation in leisure activities (Frank et al., 2005; Strunin & Boden, 2004).

Benefits to employers include avoidance of the associated financial cost, lost productivity and disruption to business continuity that can arise from illness or injury in the workplace resulting from a LDC.

Medical practitioners and the medical system will be relieved from the often time consuming burden of having to treat claimants with a LDC, especially where there is limited pathology to explain the level of disability. Most injured employees with a LDC require return to work management and coordination in addition to the management of their medical condition. This may often result in an increased level of health management complexity requiring additional time to be taken by their treating practitioner. Avoiding LDCs contributes to relieving pressure on medical resources and the public medical system.

Workers' compensation scheme savings can be realised with better management of the factors contributing to LDCs. Given LDCs account for only 20% of claims, yet contribute 80% of expenses incurred, formulation of a management model made up of effective strategies to prevent LDCs would have a significant and beneficial impact on the cost of workers' compensations schemes nationally and internationally. In turn reduced scheme costs would provide improved financial integrity, scheme security and overall system performance.

The overall economic impact bought about by prevention of LDCs includes reduction in the pressure on what are often resource stretched medical systems, improved worker's compensation scheme performance with subsequent financial savings that can be used for other services to the population and improved business productivity contributing to a country's overall GDP. Reducing LDCs has a positive impact on the economic environment.

1.3 Glossary of terms

In this thesis the terms set out below have the following meanings.

Approved Workplace rehabilitation Provider [AVRP]. A person or company accredited by WorkCover WA to provide workplace rehabilitation services to injured employees (Victorian WorkCover Authority, 2006; WorkCover WA, 2003).

Common Law. "is developed in the common courts and can be used to describe all case law or judge made law" (Federal Court of Australia, 2013, p. 1). The chief feature of the common law system is that judges' decisions in pending cases are informed by the decisions of previously settled cases (Department of Foreign Affairs and Trade, 2012).

Injury Management. A workplace managed process incorporating employer and medical management from time of injury to facilitate where practicable, efficient and cost effective maintenance in order to return to suitable employment (WorkCover WA, 2003).

Injury Management System. A comprehensive workplace based system to manage work related injuries and assist injured employees in returning to gainful employment (WorkCover WA, 2003).

Insurance. The coverage by contract where by one party undertakes to indemnify or guarantee another against loss by a specific contingency or peril (Harger, 2007). This can cover either a person or their property which is defined within the policy which is undertaken with the insurance company (Insurance Council of Australia, 2014).

Worker's Compensation Insurance. The compulsory insurance required by employers in the event that their workers are ill or injured arising out and during the course of employment.

Long-duration Workers' Compensation Claim (LDC). Workers' compensation claim that requires the employee to have a total equal to or greater than, 60 days lost time or days off work as a result of the injury, illness, disability or incident that arises out of, or during the course of employment, or as a result of the workplace or working environment (WorkCover WA, 2003).

Premium Rates. Premium is the amount to be paid for the policy in return for the coverage agreed upon within the policy (Insurance Council of Australia, 2014). The total amount an employer pays for the workers' compensation premium is calculated using several factors. In Australia, the premium rating system is based on the Australian and New Zealand Standard Industrial Classification coding system. The system defines industries with similar economic activity and each employer goes through the coding system, with only one rate being allocated (WorkCover WA, 2012a).

Short Duration Workers' Compensation Claim (SDC). Workers' compensation claim that requires the employee to have a total of less than 60 days lost time or days off work as a result of the injury, illness, disability or incident that arises out of or during the course of employment or as a result of the workplace or working environment (WorkCover WA, 2003).

Workers' Compensation. The coverage required by State Law against compensation to workers who are injured on the job, regardless of whether or not the employer has been negligent. State Law in the form of Acts and regulations defines the specific scope of cover and outline the rules, requirements, obligations of each party and the specific entitlements payable which generally set maximum entitlements that can be paid.

Workers' Compensation Claim. A compensable work-related injury, disease or disability covered by State or Commonwealth legislations to provide the worker with benefits or entitlements which include; weekly payments, medical expenses, settlements, workplace rehabilitation and reasonable travel, until such time as the worker has recovered or elected to finalise their claim for compensation.

Workplace Rehabilitation (also known as vocational rehabilitation, occupational rehabilitation, and rehabilitation). "A managed process involving early intervention with appropriate, adequate and timely services based on assessed need, and which is aimed at maintaining injured or ill employees in, or returning them to, suitable employment" (Heads of Workers' Compensation Authorities, 2012, p. 5).

Workplace Rehabilitation Services. The progressive and coordinated use of measures for counselling, occupational and vocational training and retraining, work assessment, and the use of aids, equipment, services, or other means to facilitate the restoration of those workers to the fullest capacity for gainful employment of which they are capable (WorkCover WA, 2003).

1.4 Research Aim and Questions

The Aim of this research was to examine retrospectively individual, organisational and psychosocial factors to identify if these contributed to a worker's compensation claim becoming long-duration.

The questions for this research were:

1. Do the following individual factors contribute to workers' compensation claims becoming long in duration?
    - Age;
    - Place of Birth;
    - Family commitments;
    - Health status; and
    - Cultural background

2. Do the following organisational factors contribute to workers' compensation claims becoming long in duration?
    - Terms of employment such as permanent, part-time, casual and contracts - including short term or fixed contracts (resulting in job insecurity);
    - Structure of the role to encompass good employee engagement; and
    - The role of supervision and organisational practices.

3. Do the following psychosocial factors contribute to workers' compensation claims becoming long in duration?
    - Poor health and wellbeing;
    - Job dissatisfaction;
    - Negative work experiences;
    - Low job control; and
    - Lack of supervisor and colleague support.

The premise is that effective management of individual, organisational and psychosocial factors within the workplace will ensure that employees are engaged. If an employee has a work related illness or injury proactive management of the above pre-incident factors would prevent and reduce the impact for all stakeholders and reduce the likelihood of a LDC.

The term engaged is used to describe employees who feel valued and who are consequently productive, enjoy their work environment, including the work that they perform and are a valuable member of the organisation.

1.5 Current knowledge on the topic

Initially compensation systems were characterised by a systems of income security or injured workers being paid entitlements to be able to live within society post injury. Over time the benefits of a policy of social integration were noted that allowed injured workers not only the ability to live within society, however to integrate with the rest of the population on equal footing (Mont, 2007).

The rise and growth of rehabilitation and vocational rehabilitation was seen as a way of achieving better employment outcomes, provide more successful compensation systems and greater efficiencies for all stakeholders.

The literature to date has focused on the prevention of the escalation of injuries post the incident. In the late 1980's the implementation of Task Forces were established to develop solutions to the prevention of lower back injuries from becoming chronic in nature and disability. From these various tasks forces a greater knowledge and understanding of the need to manage contributing factor such as psychosocial, individual and organisational factors that may contribute to the injury becoming long in duration and the disability was identified.

The concept of the flag model was developed to look at post incident management of the injury in an attempt to manage and prevent these contributory factors enhancing the deterioration of the injury and disability.

Whilst these initiates have delivered effective results, the emergency of a small group of injuries, where the level of disability and incapacity are disproportionate to the injury, result in the majority of scheme costs both nationally and internationally have continued to increase. Best practice management and the increased role and effectiveness of employers, health practitioners and allied health providers in the management of these claims have not been able to reduce or prevent the escalation of these claims and the burden of the costs associated with these claims.

1.6 Knowledge added by this research

This research provides a better understanding of individual, organisational and psychosocial factors in an attempt to look at the reduction and prevention of the small group of claims that have the most significant impact on national and international schemes.

Greater clarity on exploring whether these individual, organisational and psychosocial factors in fact existed prior to the incident or injury occurring allows for consideration to be given as to whether intervention needs to occur not after an incident has happened but prior to the incident occurring. A model of management based on the literature review and findings of this research has been developed to assist in the prevention of ill-health and injuries in the workplace, prior to the illness or injury occurring, by considering individual, organisational and psychosocial factors. This is an innovative study that can be used in most workplaces and can improve employee management practices.

This research has further developed the knowledge in the field and provides pre-incident prevention models of management to prevent ill-health and injuries from

occurring and, in the event that they do occur, to look to reduce the effects of workers' compensation claims and prevent them from becoming long-duration.

1.7 Research significance

The escalating costs of LDCs are a problem not only to Western Australia, however throughout the other schemes throughout Australia, as the costs can be prohibitive to the financial integrity of schemes and affected employers. Currently the 'Flags Model' is used post-injury to identify the potential for injuries to become protracted or result in significant disability and to develop strategies in overcoming the barriers to recovery and returning to work. Pre-incident intervention and screening for LDCs would ensure better outcomes, reduced duration off work, bring a reduction of costs incurred and potentially to have less severe employee injuries and ill-health.

The results of this study have been used to construct proactive intervention strategies in pre-incident/claim screening and provide a model of management to prevent LDCs. It is anticipated that the results of this study can also be used to:

1. Provide the basis for prevention measures that reduce the incidence of LDCs or eliminate them altogether;
2. Develop and apply innovative methodologies to ensure effective employee management and prevent workers' compensation claims from becoming LDCs;
3. Assist in enhancing employer-employee relationships throughout the management of the workers' compensation claim and return to work process; and
4. Raise awareness of the importance of individual, organisational and psychosocial factors in contributing to the ill-health and injury and provide guidance on how they can be prevented and managed.

1.8 Research limitations

This innovative research is seen as the first step to investigating the effect that pre-incident variables may have on the incidence of LDCs. The research is quantitative and thus explores the strong associations the variables researched have on the onset of LDCs.

The Privacy Act of 1988's requirements placed limitations on the ability to obtain claimants details from the Government authorities (e.g. WorkCover WA and other worker's compensation statutory bodies within Australia), registered insurers and employers and also to correspond with them directly about their participation in the research. Due to the Privacy Acts requirements, modification to the initial research methodology was required as sending both the injured employees and their employers questionnaires was not possible under the privacy requirements of this Act and as such analysis and comparison of both the ill or injured employee and their employer to determine the difference in responses and the reasons for the difference in response was not possible.

The Privacy Act requirements meant that the research predominantly relied upon third party distribution of the questionnaires. Insurers, medical providers, employers and external agencies were required to contact or distribute the questionnaires without the involvement or input of the researcher. Relying upon third parties to ask injured employees and employers to participate in the research meant that the researcher could not address or rectify the problem of poor response rates. The researcher was not permitted to contact participants requesting the claimant undertake the phone interview or complete questionnaires. Where participants did not sufficiently complete the questionnaire, the Privacy Act requirements prevented the researcher making contact to collect missing data, unless participants volunteered to provide their contact details allowing contact to be made to collect missing data.

Registered insurers, employers, participating medical centres and external agencies therefore committed to the research and agreed to write to injured employees and

employers who had lodged workers' compensation claims and asked them to participate in the research.

Only ill or injured employees and employers who agreed to participate in this research are included and as such this may result in a potential bias in results of the research. This research does not provide detailed or rich information on employee's perceptions or experiences on pre-incident/claim variables however it is hoped that further investigation will be conducted following the publication of this research to gain more insight into employee's experiences and feedback on pre-claim variables.

1.9 Outline of Thesis

The following chapters of the thesis provide further insight and investigation into the significance of pre-incident claim variables in the prevention of long-duration workers' compensation claims.

Chapter One provides a background to this study. It explores the problem of a small group of claims contributing to the majority of costs in workers' compensation schemes internationally and nationally and the need to examine innovative studies to reduce the effects of contributory factors that have caused the injury to escalate to becoming long in duration and have greater disability than expected.

Chapter Two provides detail on the history of workers' compensation as it has evolved internationally and nationally. It discusses the continuous evolution of workers' compensation policy and modification of entitlements to deliver a system that is fair and equitable to injured employees whilst delivering desired levels of scheme performance. It explores how schemes internationally and nationally have evolved in an attempt deliver the desired level of scheme performance. Chapter 2 reviews and explores the growth of workplace rehabilitation services and the role of the employer in return to work coordination. Finally it investigates the growth of rehabilitation and injury management services and the impact this has had on national scheme performance and premiums paid by employers.

Chapter Three provides a literature review on LDCs. This chapter specifically defines the long-duration workers' compensation claim and explores national and international statistics on LDCs to gain an understanding of the scope and size of the problem of LCD's. Chapter three also critically examines the literature and studies conducted on LDCs to gain an insight into the issues associated with LDCs. The history of psychosocial research and definitions of psychosocial modelling is reviewed. The effect of organisational, individual and psychosocial factors on employees withdrawing from the workplace and discussion on the effect of an individual's pre incident motivation and engagement was explored. Finally chapter three examines the impact of organisational, individual and psychosocial factors on injury and disability.

Chapter Four describes the methodology of the research and includes the research design, a description of the development of the questionnaires, procedures used for identification and selection of the participants, the statistical analysis performed on the questionnaire responses and the research ethical considerations.

Chapter Five provides the results of the research and investigations.

Chapter Six includes the discussion of the research findings and provides a model of management for organisations to consider in order to prevent the occurrence of LDCs relevant to the identified risks factors and, more specifically, ill-health and unengaged employees in general.

Chapter Seven as the concluding chapter summarises the research and findings. It draws conclusions makes recommendations for the pre-claim prevention of long-duration workers' compensation claims and for future research.

The next chapter of this research report provides a summary of the history of the workers' compensation system and information about workers' compensation and vocational rehabilitation in Western Australia.

2.0: Introduction to Workers' Compensation in Western Australia

2.1 Introduction

Chapter Two traces the history of workers' compensation legislation in Australia focussing on the development of injury management and vocational rehabilitation. In turn, the growth of vocational rehabilitation services lead to the creation of new roles and responsibilities for employers in the areas of injury management and return to work coordination. This chapter investigates the impacts of vocational rehabilitation upon employers and considers the effectiveness of those interventions and their impact on premium rates and scheme performance.

2.2 Introduction to Workers' Compensation

Disability policy such as workers' compensation entitlements has two main goals, income security and social integration (Mont, 2004). Income security provides individuals with the ability to obtain adequate food, housing and health care whilst allowing a decent life free from financial and safety concerns (Gambrel & Cianci, 2003). Social integration, or complete integration, allows individuals with disabilities the broadest of possible opportunities to participate efficiently in the economy and society at large, removing social isolation and barriers to participation that previously plagued people with disabilities. The aim of this successful integration is not only to improve the lives of these individuals, but to advance society as a whole by increasing productivity, lowering unemployment and reducing the reliance on government benefits (Mont, 2004).

"A persons' employment status has been demonstrated to be intrinsically related to the individual's sense of wellbeing; self-reported health status and usage of health services" (Young & Murphy, 2002, p. 276).

Workers' compensation policy development in Australia initially demonstrated a dependence on, and then a move away from, an income security focus to that of a social integration focus. This has resulted in a transition away from injured workers becoming dependent on benefits, to one where they re-establish themselves as independent members of the community through the process of returning to some form of work and reducing income dependency.

Since 1900 all Australian States and Territories have legislated to create workers' compensation schemes. Those schemes were largely modelled on the English legislation with some influence from the German social welfare systems. The key features of these early schemes were basic income support and medical/health care coverage for workers. For employers there was a requirement, developed over time, to obtain compulsory insurance. All these elements existed under the umbrella of a no-fault system, that is to say that the worker did not have to show employer or third party negligence in order to gain access to a workers' compensation system.

2.3 History of Workers' Compensation

Compensation for injury has ancient origins with the notion of compensating bodily injury dating back to approximately 2050 BC, when the then King of the Ancient Sumeria passed the Ur-Nammu law which provided monetary compensation for specific injury to workers' body parts including fractures (Guyton, 1999; Harger, 2007).

Dating from approximately 1772 BC, the Babylonian Hammurabi Code provided a set of rewards or compensation for specific injuries and their permanent impairments (Harger, 2007). The Code of Hammurabi is a well-preserved Babylonian Law Code of ancient Mesopotamia, dating back to about 1772 BC. It is one of the oldest deciphered writings of significant length in the world. The sixth Babylonian king, Hammurabi, enacted this Code, which was found on stone at the start of 1902 (Prince, 1904). Ancient Greek, Roman, Arab and Chinese laws also provided sets of

compensation schedules, with specified payments for the loss of a body part (Guyton, 1999).

The origins of the current Australian workers' compensation systems stem from Germany where legislation was passed in 1838 to protect railroad workers and passengers in the event of an accident. Further legislation was passed in 1854 requiring certain classes of employers to contribute to sickness funds and in 1876 a Voluntary Insurance Act was enacted (Harger, 2007).

The German approach was followed not long after by the United Kingdom where in the 1850's, newly minted provisions imposing obligations upon employers often led to legal tussles between employers and injured workers resulting in engagement of the legal profession into the workers' compensation system (Guyton, 1999).

Many of these novel provisions needed to be tested in the courts, especially those relating to the scope of the employers obligations and the calculation of workers entitlements. Such litigation could sometimes result in prohibitive legal costs, significant delays and usually provided no incentive for rehabilitation or return to work of the injured worker because the focus was on monetary issues. Notably one of the reasons for the introduction of workers' compensation laws in United Kingdom was that it was difficult for injured workers to successfully sue their employers for negligence.

In the United States of America (USA), injured workers had similar difficulties experienced due to there being little prospect of obtaining damages from their employer. After the Employers' Liability Act 1906 was passed by Congress workers' compensation laws were drafted in most jurisdictions of the United States (commencing in Wisconsin in 1911) to create a system to allow income security for injured workers. However, employers lobbied the States to allow workers' compensation laws only on the condition that employers are no longer liable for any common law damages claims (Guyton, 1999). Consequently the introduction of

workers' compensation laws in the United States was characterised by a historic trade-off with workers winning the right to income security and employers winning the abolition of common law claims against them.

This trade-off distinguished the United States worker's compensation system from the evolution of the United Kingdom and Australian systems which, until the mid-20th Century in England and the 1980s in Australia, allowed for workers' compensation claims to be commenced whilst workers retained the right to sue their employers (Harger, 2007).

2.4 Evolution of Workers' Compensation in Australia

The first workers' compensation laws in Australia were introduced around the turn of the century initially in South Australia with the Workmen's Compensation Act 1900 (Purse, 2005). Other States, Territories and the Commonwealth Government of Australia then introduced legislation that included the Western Australian Workers' Compensation Act 1902; Queensland Workers' Compensation Act 1905; New South Wales Workmen's Compensation Act 1910; Commonwealth Workmen's Compensation Act 1012; Victorian Workers' Compensation Act 1914; Northern Territory Workmen's Compensation Act 1920; The Workers' Compensation Act 1927 of Tasmania and the Australian Capital Territory Workmen's Compensation Ordinance 1951. "The first workers' compensation laws in Australia were generally known as workmen's compensation and did not expressly cover female workers until challenged by the women's movement of the 1970s" (Safe Work Australia, 2011a, p. 9).

Early legislation was based on the United Kingdom models of legislation. Prior to the introduction of this legislation the costs of workplace injuries were generally borne by the workers and their families; their only method of compensation was to sue for damages at common law, where the worker was required to prove negligence of their employer, but would be hampered in those proceedings by common law defences that heavily favoured the employer.

Despite the trade off in other schemes Australia adopted a two-tiered compensation system in the early 1900's, where the worker was entitled to both workers' compensation benefits and common law, where the employer could be shown to be negligent.

The early 1900's Australia saw the growth of trade unions to protect worker rights and entitlements at work. Around this time the Labour Party was formed providing a greater voice for workers' rights and entitlements.

The NSW government was the first State to pass legislation to ensure that workers' compensation insurance was compulsory (1926) and "established a compensation commission to ensure a streamlined process for hearing and resolving disputes" (Purse, 2005, p. 11).

The result of these extensions to the legislation was an increase in the overall costs incurred by employers in workers' compensation claims. Whilst prior to the Great Depression, worker entitlements were favourable this did not continue. The depression followed by World War II saw a shift of power from workers back to the employer with conservative governments suspending extensions to workers' compensation systems.

In 1960 the High Court decided the case of Kavanagh v Commonwealth (1960) 103 CLR 547. Kavanagh died as a consequence of ruptured oesophagus. This injury occurred whilst he was not engaged in any work activity (he was in fact vomiting at the time). His widow claimed compensation on the basis that the injury was in the "course of his employment" and the High Court agreed (Purse, 2005, p. 12). The effect of this decision was to broaden the scope of workers' compensation legislation and impose increased potential liability on employers.

At around the same time there was a general trend to remove any restriction on the class of workers who could claim compensation and to increase the benefits available to workers to reduce the impact of injury. For example in 1971 New South Wales injured worker's weekly payments were increased from 67% to 80% of average weekly earnings (Purse, 2005). This replicated throughout other Australian schemes and eventually increased to, or near to, 100% of the average weekly earnings. There is a more recent trend toward the introduction of 'step downs' in weekly earnings at specific durations throughout the claim should a person remain unable to perform their normal duties. A cap on weekly payments for workers whose wages exceed the legislated maximum weekly payment entitlements (varying between jurisdictions) is also applied.

In the 1980s the Northern Territory and South Australia abolished common law rights for workers against their employer. The revolutionary development was based on the New Zealand model (developed in the late 1960s by Justice Woodhouse) of a more universal accident compensation system and was to some extent prompted by increasing common law claims.

In contrast to the United States trade-offs, the Northern Territory and South Australia provided injured workers with ongoing compensation rights until age 65 years.

For the next two decades all other States made modifications to their workers' compensation and common law schemes, placing threshold requirements for access to common law in an effort to reduce the ability to litigate against their employers limiting but not abolishing, the workers capacity to sue a negligent employer.

A focus on workplace rehabilitation emerged from the influence of Justice Woodhouse and the adoption of his approach in the Northern Territory and South Australia. With the removal of awards for lump sum damages, employers and insurers needed to consider ways to reduce their ongoing income maintenance

liability. The chief means of doing this became return to work and vocational rehabilitation.

The 1970's to the mid 1990's not only saw a period of increasing worker entitlements, employee/union promotion and employer premiums, it was also characterised by increasing cost of administration of claims, deficiencies in structural scheme design, inefficient underwriting arrangements and a decreased ability of employers to shift the costs of work related injuries onto the social security system (Purse, 2005). As a consequence this lead to the need for development of policy measures to decrease costs (Purse, 2008).

Whilst the increase in workers' compensation claims costs was closely related to the factors noted above it was also a result of employers lacking focus and the ability to effectively manage occupational health and safety and a lack of vocational rehabilitation to assist injured workers in returning to work (Purse, 2008). Importantly until the 1980s there was very little focus on vocational rehabilitation in workers' compensation legislation in Australia. It did emerge with the change in focus bought about by the influence of Justice Woodhouse and the adoption of his approach in the Northern Territory and South Australia. In those jurisdictions when the focus was shifted away from lump sum damages awards (which were abolished) to income maintenance for workers it was necessary for employers and insurers to consider ways and means to reduce their liability. The chief means of doing this became return to work and vocational rehabilitation.

It was in this climate that political space was created within which the push for modernisation of workers' compensation arrangements by the reformed Labour Government (Purse, 2005). More particularly in the face of strong opposition from organized labour and the reformist social democratic government, the decreased ability of employers to shift the costs of work related injuries onto the social security system facilitated the consideration of policy measures to decrease costs (Purse, 2008, p.15).

The approach to the reformation of workers' compensation was by no means universal. With each State maintaining its own system and each system being heavily politically influence the reform of Australian systems was a patch work. Of all the reforms the Victorian Government implemented the most comprehensive was undertaken in 1985. The then new WorkCare Scheme was based on public underwriting (Government based scheme, rather than private schemes where underwriting was controlled by the relevant registered insurance companies). The Scheme also included vocational rehabilitation, and substantial health and safety initiatives. Similar initiatives in the New South Wales and South Australian schemes followed soon after.

The success of vocational rehabilitation and health and safety initiatives were short lived and failed to deliver cost savings. This, coupled with the 1980's economic downturn, resulted in a roll back of entitlements and benefits to injured employees. Notably in most States Labor Governments were swept from power in the late 1980s and Liberal conservative government almost universally set out reining in the apparently increasing costs of workers compensation and common law claims. Universally Trade Unions in all States fought hard to resist change but in the main were unsuccessful in preventing significant restrictions to common law claims and reductions in entitlements. For example changes to unlimited common law access was headed by Western Australia who introduced injured employees having to demonstrate levels of disability in excess of 15% total body to allow them access to common law benefits. At this time Western Australia also introduced step-downs for weekly payments (reduction to payments after certain periods) and the removal of cover for journey claims to and from work. Queensland followed Western Australia's lead and introduced a 20% level of impairment to allow employees access to common law benefits and also removed journey claims.

At this time, the conservative Tasmania Government did not impose restrictions to common law access but did proceed to introduce a 3 tier step down rate for weekly payments, remove journey claims and restricted access to certain stress claims Tasmania Parliamentary Debates 1995: 1688-1693 as cited in Purse, p.17).

Purse (2005), provides a complete a detailed history of the evolution of the development of the workers' compensation system in Australia. Further detailed information documenting the comprehensive and detailed history of all Australian workers' compensation jurisdictions be obtained from this source.

In 2015 there is discussion and recognition of the need for harmonisation of the workers' compensation schemes across all States and Territories however progress towards this goal is slow given individual State's political pressures and the divergent needs of key stakeholders.

Other trends impacting on workers' compensation schemes in Australia today include an aging workforce and the subsequent removal of age limits to access workers' compensation weekly payments. This has implications for increasing levels of age related and degenerative work injury and illness, with possible impact on scheme costs.

2.5 Integration of Injured Workers back into Society and the emergence of Vocational Rehabilitation Services

Noting the rise of the notion of vocational rehabilitation in workers' compensation systems it is useful to consider the rise of vocational rehabilitation services (including occupational therapy and allied health) as a concept. "The consequence of World War I and II saw a major shift from compensation policy to social integration. Soldiers with injuries as a result of their service now wanted to live independently and be economically viable through employment" (Ross, 2006, p. 7). To support this demand for rehabilitation the growth of the field of occupational therapy flourished, as it was a vehicle to help support the injured back into society.

The beginnings of vocational rehabilitation services commenced at the turn of the century when doctors, nurses and teachers began to use return to work as a form of treatment (Ross, 2006). Wilcock, as cited in Ross (2006), noted the practice of

occupational therapy was defined as the process of science of occupational healing. It was proposed “the wholesome effects of manual and mental tasks upon sick individuals saw occupational therapy as a healing force to be used whenever possible” (Peloquin, 1991, p. 356).The growth of vocational rehabilitation was promoted and research commenced to gain a better understanding of the effects work and actively participating in the workforce had on recovery.

The Boer War [where British Empire soldiers, including Australian, fought in South Africa against the Boer settlers from 1899 to 1902], World War I and II saw soldiers returned with severe and debilitating injuries such as amputations, burns, neurological injuries, blindness and mental health issues. This resulted in an increased demand for therapists and consequently occupational therapy services improved as more flocked to the area to meet demand. The development of policy and procedures for vocational rehabilitation resulted as a means of communicating to the public about occupational therapy services and the effects of the services to injured people and the wider community.

As the awareness and development of vocational rehabilitation expanded and permeated society, so did the scope of services. In its early beginnings rehabilitation focused on arts and crafts and later expanded to look at crafts, trades and later at the workplace as a whole. Therapist’s roles expanded to developing orthotics, training patients in the use of prosthesis, evaluating skills to determine vocational options and improving interpersonal communications (Ross, 2006).

In 1954 the Commonwealth Vocational Rehabilitation Act was passed and was amended again in 1978 to incorporate all of society and all ages. Centres to assist with occupational therapy expanded and focused on providing independent living guidance. Vocational rehabilitation services included pre-vocational assessment, counselling, work adjustment, vocational assessment and placement, functional capacity evaluations, work tolerances, work evaluation, assisting with the

development of appropriate treatment, development and monitoring of exercise programs and work hardening (Ross, 2006).

The 1960's and 70's saw Commonwealth government policy develop to control rehabilitation and the creation of pensions for people who meet an agreed criteria. At this time there was also a change in technology that saw a move from traditional crafts to an increase in manufacturing. Society was also changing and women who had been encouraged to leave their homes during the war to support war efforts, struggled to retain their new found independence and continued place in the workforce.

2.6 Vocational Rehabilitation in Australia

World War II saw vocational rehabilitation services permeate Australian society. At the time therapists were generally trained and accredited overseas and were very limited in numbers. Requests from the armed forces to assist with the rehabilitation of injured soldiers lead to the rapid growth of the profession within Australia (Ross, 2006; Kendal *et al., 2007*).

The growth in the demand for vocational rehabilitation services resulted in the growth of training centres; occupational therapy departments in military hospitals and large community based rehabilitation centres to assist the injured integrate back into society and the work force.

Initially rehabilitation services were only provided to people returning to paid work, which tended to be men. The Commonwealth Social Services Act of 1977 expanded the services to include people of working age who would be likely to derive substantial benefit from treatment and training to include broad goals of rehabilitation. Rehabilitation services were extended to include persons undertaking or resuming household duties and leading an independent or semi-independent life at home (Ross, 2006).

In the 1980's the development of many large community based rehabilitation centres to assist injured and disabled people integrate back into the workforce was stalled. Many of these large centres closed and rehabilitation efforts focused on disability services for people with back and head injuries, repetitive strain and other overuse injuries.

It was at this time in the 1980's and 90's that important developments in the State and Commonwealth workers' compensation systems occurred. In an attempt to help curb the escalating costs within the system, rehabilitation and returning injured workers to the workforce was seen as vital. In conjunction with the above, the development of private rehabilitation services occurred and resulted in an emphasis on achieving outcomes, meeting agreed performance indicators and motivating clients to return to paid employment (Ross, 2006).

The impetus to save workers' compensation costs and premiums "saw the government sector engage with the practice of occupational therapists working for large rehabilitation hospitals being seconded to organisations to focus on reducing injury and ill-health by early injury intervention, health promotion and injury prevention practices" (Ross, 2006, p. 14). This practice soon caught on and was developed by private enterprises to include financial intuitions, Australia Post and large high-risk manufacturing organisations. Soon after this move the so-called Repetitive Strain Injury [RSI] epidemic manifested and consequently in-house rehabilitation and health promotion and rehabilitation consultancy grew exponentially (Ross, 2006).

2.7 The Emergence of the employer's role in injury and workers' compensation management

Prior to the introduction of rehabilitation into workers' compensation systems in the 1970s and 1980s, the injured worker was left to navigate their own way through the

process of recovery unless aided by a benevolent or forward thinking employer. There were no formal processes for return to work, little employment protection for injured workers and no anti-discrimination laws to prevent discrimination on the ground of disability. While theoretically the use of rehabilitation in workers' compensation schemes was to establish a means of controlling costs without decreasing entitlements, the injured workers had little or no assistance from their employer in the process of returning to employment consistent with the compensation focus of the legislation.

In Western Australia, greater onus on the employer to take an active role in the management of work related injury and illness within their own workplaces, was driven by the Western Australian WorkCover Authority who saw the need for employers to be more actively involved in the process of return to work coordination as a key stakeholder.

In 1999 the Western Australian WorkCover Authority published Guidance notes on the employer's role in injury management and return to work coordination. The role of the injury management coordinator was introduced and WorkCover encouraged registered insurers to take an active role in providing training to employers and their injury management coordinators stressing the importance of the implementation of proactive injury management systems by employers.

The Western Australian Workers' Compensation Code of Practice Injury Management 2005' enshrined in legislation the employers roles as central to the management of injured workers, requiring employers to develop a return to work programme for their injured workers when the injured worker's treating medical practitioner deemed the worker fit for a return to work on duties other that their full pre injury role. This was accompanied with a best practice guidance notes and education seminars were provided for employers to assist them in meeting their obligations as a result of the changes.

These changes were designed to ensure the employer and the injured/ill worker (along with the treating medical practitioner) were placed at the centre of the process of worker's compensation claims management, injury management and return to work.

Ensuring the active involvement of the employer as one of the key stakeholders (i.e. injured worker, medical practitioner, and employer) was vital to the success of workplace rehabilitation and overall recovery. This thinking was supported by recognition that discussion and cooperation between the above mentioned parties and an ability to provide modified work duties were considered to be two of the key elements to a successful return to work (Institute for Work & Health, 2007).

Employers today recognised that 'good business' includes the need to actively manage the full spectrum of business systems and operational activities with a focus on the implication this has to ill health and injury and its subsequent impact on workers' compensation.

2.8 The implementation of Approved Vocational Rehabilitation and Injury Management Coordinators

The mid 1980's saw the introduction and growth of Vocational Rehabilitation services across Australia. In Western Australia, the use of approved vocational rehabilitation providers was seen as a tool to assist both the employer and the injured worker to achieved optimal return to work outcomes. Whilst the implementation and reform of workers' compensation system involves a constant struggle and tension between competing interests, an area of common ground is found in vocational rehabilitation. For some individual stakeholders the implementation and costs of vocational rehabilitation remain contentious. In Western Australia approved vocational rehabilitation providers utilised a number of vocational services to help parties with the coordination of return to work, these included counselling, occupational and vocational training and retraining, work assessment and the use of aids, appliances and other services deemed appropriate.

Initially in Western Australia, WorkCover employed rehabilitation counsellors to assist parties with the return to work process. However over time, due to the growth in demand for these services, private vocational rehabilitation providers were established and eventually the Vocational Rehabilitation Division of WorkCover WA was disbanded.

Up until early 2000, the Western Australian Workers' Compensation and Injury Management Act of 1981 only recognised the role of approved vocational rehabilitation providers to assist injured workers and employers with the return to work role and coordination. After 2000 the role of the employer in the "rehabilitation" process was endorsed in the WorkCover WA Guidance Notes and the process of vocational rehabilitation involving the employer was referred to as injury management.

It was recognised that often the employer had the ability to coordinate return to work intervention without the assistance of an approved rehabilitation provider. This is particularly so of larger employers and government agencies. Over time this group of employers learnt the importance of their involvement in the process to ensure early intervention and prompt management to ensure expedient return to work. Most large organisations employed injury management coordinators or other personnel to ensure that the return to work management was conducted efficiently and to prevent the escalation of costs associated with poor return to work or common law actions.

In the majority of injuries the employer, the injured worker and medical provider were able to discuss and agree suitable return to work programs, whereby the injured worker could perform alternate or modified duties until able to return to their pre-injury hours and duties.

In 2005 the Western Australian Workers' Compensation legislation was amended to the *Workers' Compensation and Injury Management Act 1981* (WA), to recognise the importance of injury management and the role of the employer in the process. The Injury Management Code of Practice was introduced and was given legislative endorsement by reference to these principles under Section 155A of this Act.

The 2005 amendments to the *Workers' Compensation and Injury Management Act 1981* (WA), recognised and legislated for the first time in this State, the role of the employer and their obligations in the return to work process and injury management. The Western Australian Workers' Compensation Code of Practice (Injury Management) 2005, specifies the involvement and intervention of Western Australian employers who have a worker with a work related injury and requires, pursuant to section 155B of the Act, that employers have injury management policies and procedures in place.

Pursuant to section 155C of the Act, this Code of Practice requires employers to have a written description of its injury management system, including what is to occur when an injury occurs and contact details of the person who is responsible for the day-to-day management of the injury management system. Employers must ensure that the documented injury management system is available and accessible for all workers.

According to this Code of Practice employers must ensure that a Return to Work (RTW) Program is established for an ill or injured worker as soon as practicable following a request by the ill or injured worker's treating medical practitioner; where the treating medical practitioner has certified in writing that the worker is either:

- Partially fit to RTW to their normal job; or
- Totally or partially fit to return to an alternative job.

Employers must ensure that the establishment, content and implementation of a RTW program in accordance with the Code.

The employer is required to have the RTW program in writing, with all parties endorsing their commitment by signing the program according to the Code of Practice. Parties required to sign the RTW program are the injured worker, treating medical practitioner and employer.

Finally the Code of Practice requires the RTW program to specifically list the intervention/s of all parties to achieve the goal of the RTW program. Examples of interventions that may be required to achieve the RTW goal (i.e. ill or injured worker returning to their pre-injury position wherever practicable) may include, but not be limited to, the worker attending all medical and allied health appointments and performing home or gym based exercises. For the employer interventions may include assisting the worker with travel arrangements and reviewing the RTW program on a weekly basis.

Australian National schemes and International Schemes provide instruction on best practice injury management and promote and encourage a similar approach to that of the Western Australian system and more specifically the Code of Practice, encouraging employers to actively assist workers in the return to work coordination and injury management of their injured workers (Victorian WorkCover Authority, 2006; WorkCover Tasmania, 2010; WorkCover WA, 2012b).

2.9 The Cost of Workers' Compensation to Employers

In 2110-2011 the Australian standardised average premium rate was 1.49% of payroll, a fall of 16% since 2005-2006 (Safe Work Australia, 2013b).

Table 3 shows the standardised average premium rate in each jurisdiction between the period 2006/07 to 2011/12 financial years as reported in the below reports.

Table 3: Standardised average premium rates 2006-07 to 2011-12 (Safe Work Australia, 2011b, p. 73; 2013a, p. 24; 2013b, p. 14; 2014c, p.14)

Jurisdiction	2006-07	2007-08	2008-09	2009-10	2011-12
New South Wales	2.16%	1.93%	1.83%	1.79%	1.70%
Victoria	1.60%	1.46%	1.38%	1.35%	1.34%
Queensland	1.13%	1.09%	1.07%	1.22%	1.42%
Western Australia	1.63%	1.35%	1.14%	1.14%	1.21%
South Australia	2.84%	2.84%	2.82%	2.49%	2.51%
Tasmania	1.77%	1.49%	1.38%	1.50%	1.51%
Northern Territory	1.81%	1.81%	1.74%	1.79%	1.81%
Aust Capital Territory (Private)	2.65%	2.29%	2.13%	2.05%	1.99%
Commonwealth: Comcare	1.15%	1.03%	0.95%	0.92%	0.99%
Commonwealth: Seacare	5.46%	4.76%	3.86%	2.64%	3.12%
Commonwealth: DVA	n/a	n/a	n/a	n/a	n/a
Australian Average	1.79%	1.61%	1.52%	1.49%	1.51%

Table 4 below shows the highest and lowest published and experienced rates, in addition to the average premium rates for the Australian States as at September 2010. There have been no further updates published regarding this data since 2011.

Table 4: Average premium rates as at 30 September 2010 (Safe Work Australia, 2011b, p. 74).

	NSW[1]	**Victoria**	**QLD[2]**	**WA[3]**	**SA[4]**	**Tasmania**
Average levy/premium rate	1.66%	1.338%	1.30%	1.497%	3.00%	1.97%
Highest (published) rate	11.672%	11.173%	7.896%	6.81% (Food manufacturing).	7.5%	8.24% (Meat processing).
Lowest (published) rate	**0.215%**	**0.31%**	**0.162%**	**0.25%**	**0.40%**	**0.41%**

1 - New South Wales - Average levy/premium rate excludes GST and additional costs arising from The New Tax System. All industry premium rates quoted include GST.

2 - Queensland - Published rates exclude stamp-duty and GST. Average premium rates include stamp-duty and exclude GST.

3 - Western Australia - All published and premium rates are exclusive of GST.

4 - South Australia - All listed rates are exclusive of GST. All other listed rates include GST and The New Tax System effects.

It is important to note that premium rates standing alone may not be true guide of the health of a compensation system. Sole insurers may be influenced in setting rates and a better understanding of the health of the compensation system may be achieved or seen in States where rates are set by an independent committee e.g. Western Australia, reflecting of claims costs. A range of factors, not simply only injury management success, may affect claims costs. For example, changes to legislation to reduce access to common law rights may reduce claims as evidenced

by the amendments to the *Workers' Compensation and Injury Management Act 1981* (WA), after 2005. Injury management is one ingredient only in rate calculations (WorkCover NSW 2007).

Overall there was a significant decrease in premiums across most legislation 2004/05 to 2011/12. The reasons for the overall improvement in employer premium rates within Australian are multifactorial. The role of the employer and involvement into injury management and workers' compensation and business systems in general explains in part some of the improved performance.

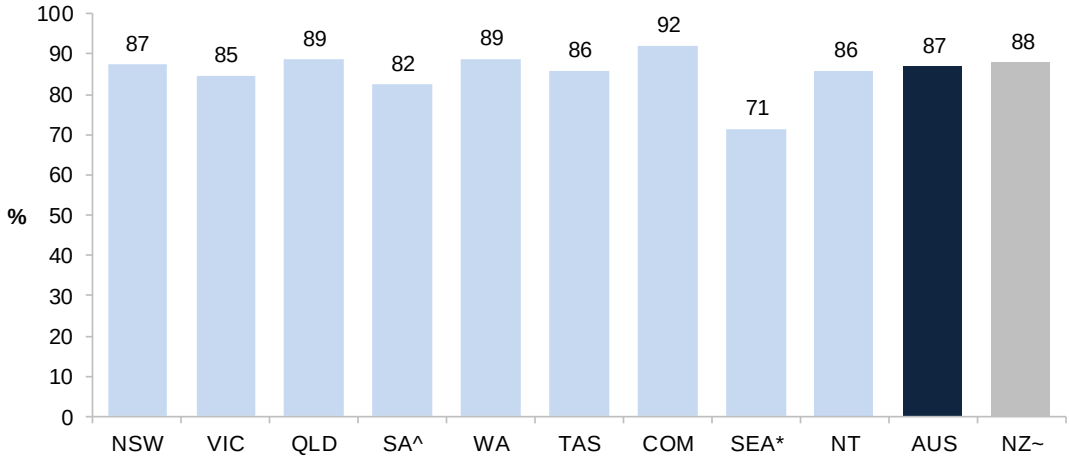
2.10 The Effect of a Return to Work Focus?

In the last 20 years all Australian systems have moved away from a compensation centred workers' compensation system to a more holistic approach which recognises that there is a benefit to all parties where the workers is able to return to durable and meaningful work. This recognition has led to the introduction of the principles of Injury Management that mandates the involvement of employers in conjunction with other professionals, notably Approved Vocational Rehabilitation Providers (AVRP's). With the combined focus on the role of the AVRP and the role of the employer being clearly defined and legislated to emphasise maintenance at work or early return to work. The question now arises whether the research and statistics support this major shift in emphasis. This requires an examination of rates of return to work, claim costs and claims settlements.

A review of the National data reveals the return to work rates for the period 1997/1998 to 2012/2013 as provided the Heads of Workers' Compensation Authorities show that the return to work rates remain relatively stable (The Heads of Workers' Compensation Authorities, 2012). National RTW rate showed steady improvement between 2002/03 (83%) and 2005/06 (87%) before returning to 84% in 2011/12 and returning to 87% in 2012/2013 (The Heads of Workers' Compensation Authorities, 2009b, 2012).

Research shows that the durable RTW rate has gradually declined, with a lower durable RTW rate being recorded in 2008/09 (72%) to 2007/08 (75%) and remains at this rate in 2011/12. It is now taking injured workers longer to return to a durable RTW. (The Heads of Workers' Compensation Authorities, 2009a, 2012). The RTW Monitor has demonstrated that the substantial initiatives put toward improving RTW outcomes have had little impact (The Heads of Workers' Compensation Authorities, 2009a).

The return to work rates for the 2013-14 period are displayed in Figure 3.



Base: Historic Cohort – those with 10+ days off work and whose claim was submitted 7-9 months prior to the survey.

(AUS=2397: NSW=451, VIC=403, QLD=456, SA=245, WA=400, TAS=225, COM=125, SEA=14*, NT=78. NZ=345).

Note: Weighted by jurisdiction population, consistent with the Return to Work Monitor.

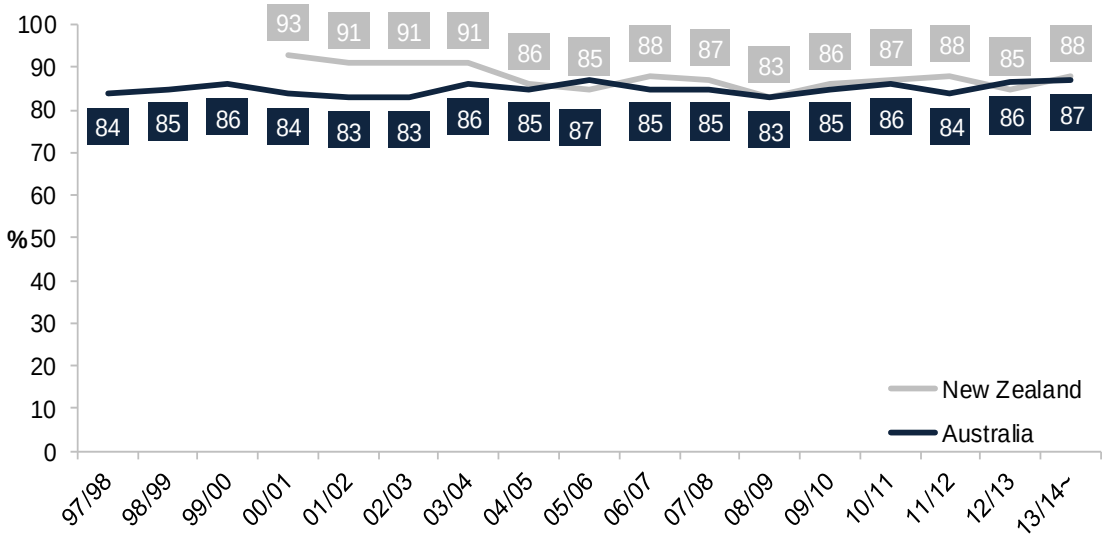
^ South Australian data refer to claims with more than 10 days lost (as opposed to 10 or more days lost).

* Caution should be exercised in interpretation due to small sample size and the requirement to be certified medically fit to perform the normal on-board work tasks and duties of a seafarer.

~ Note that 2013/14 New Zealand data were also weighted by ethnicity and days compensated

Figure 3: National Return to Work rates 2013-14 (The Social Research Centre, 2014, p. 3).

These rates are mirrored in a survey conducted for Safe Work Australia (2013) by the Social Research Centre which reveal that the return to work rates remain constant at approximately 84 to 86% for the period 1997/98 to 2012/2013, as displayed in the following Figure 4.



Base: Historic Cohort – those with 10+ days off work and whose claim was submitted 7-9 months prior to the survey.

	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14
AUS	3195	3142	2966	2687	2995	3014	3019	3017	2965	2689	3007	3028	2279	2397
NZ	536	581	570	595	600	600	600	608	600	600	601	600	452	345

Note: Weighted by jurisdiction population, consistent with the Return to Work Monitor.

~ Note that 2013/14 New Zealand data were also weighted by ethnicity and days compensated.

Figure 4: National Return to Work Rates (The Social Research Centre, 2014, p. 2).

Further reviews of Western Australian data repeated show that claim numbers lodged in Western Australia reveal remained relatively stable (WorkCover WA, 2011b, 2012c). During the same reference periods, claims with no lost time decreased while number of lost-time claims increased including LDCs (Workcover WA, 2012c, 2014).

It can therefore be concluded that the increased and active role of the employer has not shown significant benefits to return to work rates, a decrease in claims numbers or a reduction in the number of claims becoming longer in duration from the research and statistical information.

Safe Work Australia (2011b) published an article titled Work related Injuries in Australia – Who did and didn't receive worker's compensation in 2009-10. This study reveals that whilst in this period, 567 500 employees were injured while working only 38% applied for workers' compensation benefits (Safe Work Australia, 2011b).

The research revealed that the amount of time taken off work following an injury impacted on whether the employee applied for workers' compensation or not. Only 23% of injured employees who took no time off work applied for workers' compensation compared with 73% of injured employees who took 5 or more days off work (Safe Work Australia, 2011b). Males were more likely to receive workers' compensation and women often felt their injury was too minor to claim. Age only influenced a small proportion in whether an employee received workers' compensation or not (Safe Work Australia, 2011b).

The most common form type of financial assistance, other than worker's compensation, was the use of sick leave (Safe Work Australia, 2011b).

2.11 Summary

The early systems of compensation were characterised by a trade-off between a worker's statutory benefits in comparison to the right to sue their employer at common law. Amidst all the changes to entitlements and benefits has been the aim of delivering a system of compensation that is fair and equitable.

Whilst nationally and internationally there are various similarities in workers' compensation systems, there are equally various differences. For example the United Kingdom has a fault based system where workers are required to seek compensation through the common law legal system, New Zealand citizens have a system of social and workers' compensation benefits that deliver equal entitlements whether the illness or injury arose as a result of employment or other means. It is evident that

there are different approaches to achieving fair and equitable systems of compensation despite the various approaches.

The growth of rehabilitation service was evident in the periods after World War I and II to assist combat the escalating costs of workers' compensation schemes. These services have now extended to include the role of the employer and organisation as an active member in the coordination of return to work. The employer is seen as one of the most important drivers of injury management and return to work services, being a key stakeholder (in addition to the injured worker and treating medical practitioner) to the process and having the greatest knowledge of the work environment and injured worker.

Statistics show that on average within all schemes, lodgement of claims, as well as the total claims costs, has decreased for the majority of categories with the exception of long-duration claims. The increased involvement of the employer in the management of injuries in their workplace and workers' compensation management can be considered as a factor to the overall reduction in costs of claims and subsequent premiums paid by employers.

Whether a workers' compensation scheme is funded and administered from the private or government sectors, compensation systems must contain costs. In order to do so it is necessary to return injured workers back to work, post illness or injury. Occupational therapy and injury management (or return to work coordination) has developed in workers' compensation systems because they are integral to returning ill or injured workers back to work.

Research reveals that whilst data repeatly show that claim numbers remained relatively stable in WA (Workcover WA, 2012c, 2013, 2014) that claims with no lost time have decreased and the number of lost-time claims increased including long-duration claims (Workcover WA, 2012c, 2013, 2014).

National evidence reveals that the majority of employees who have work related injuries do not apply for workers' compensation and of those that do, their decision to lodge a claim is based mainly on whether they require time off work. This would explain the reason that claim numbers are reducing in schemes, especially for claims where there is no lost time. This in part also explains why long-duration claims are more prevalent and claims are becoming longer in duration.

This research attempts to take a further step in trying to implement preventative steps to reduce the likelihood of long-duration claims occurring and as a consequence reducing the subsequent associated costs. The next chapter continues with a review of published literature that is relevant to the researched topics.

3.0: Literature Review - Defining the Problem

3.1 Introduction

The change in direction of disability policy from income security to social integration (Mont, 2004), as discussed in Chapter Two resulted in the emergence of rehabilitation services to provide ill or injured employees the ability to return to gainful employment.

Despite the growth and development of best practice injury management/rehabilitation, a small group of claimants continue to struggle to achieve gainful employment outcomes in spite of apparently limited obstacles to explain their inability to achieve success.

This chapter reviews the current available literature pertaining to the effect of ill-health and injuries in a workplace context and explores the impact that ill-health and injuries have on workers' compensation schemes. The focus primarily examines long-duration claims (LDCs) – those claims that are seemingly impervious to the current range of social integration strategies. LDCs are defined, and problems associated with LDCs explored, including the impact that LDCs have on worker's compensation schemes nationally and internationally. Particular examination of the small group of claimants who have limited apparent obstacles and who defy best practice rehabilitation is undertaken.

Chapter Three reviews the literature outlining the history of research on workers' compensation claims and more specifically LDCs to identify relevant information on the best approaches and interventions, prior to an injury occurring, to prevent LDC injuries from occurring and/or reduce the potential impact, cost and duration of a claim if it does occur (preventing LDCs).

The history and literature associated with psychosocial modelling focussing on individual, organisational and psychosocial factors that are thought to contribute to workers' compensation claims are explored in this chapter. The aim of this literature review was to identify and critique existing knowledge, lessons, good practice and gaps in published information related to the study topics.

3.2 Research Method for Literature Review

A review of published and unpublished literature relating to research methods for the prevention of ill-health and injuries was conducted using Google Scholar Advanced Search, in conjunction with the Curtin University catalogue search. The literature was limited to the English language and included published literature from 1970 up to and including 2015. A total of 67,200 articles were located. The same search was conducted for the prevention of workers' compensation claims, where a total of 32,900 articles were located. A further search was conducted to include the prevention of injuries, ill-health and workers' compensation claims identifying a total of 16,400 articles.

Keywords were typed into the search engines Google Advanced Scholar to access articles from peer reviewed international and educational journals, occupational safety bulletins, conferences and unpublished theses: The keywords and the total of the articles located are listed below:

- A search of "demographic factors" located a total of 421 articles.
- A search of "individual's health factors" located a total of 180 articles.
- A search of "organisational culture" located a total of 214 articles.
- A search of "organisational practices" located a total of 47 articles.
- A search of "employment conditions" located a total of 418 articles.
- A search of "job autonomy" located a total of 72 articles.
- A search of "job control" located a total of 293 articles.
- A search of "employee satisfaction" located a total of 579 articles.

- A search of “employee dissatisfaction” located a total of 281 articles.
- A search of “impact of leadership” located a total of 15 articles.
- A search of “job security” located a total of 1310 articles.
- A search of “poor safety climate” located a total of 7 articles.
- A search of “work team” located a total of 133 articles.
- A search of “psychosocial factors” located a total of 817articles.
- A search of “biophysical rehabilitation” located a total of 281 articles.

A search of “organisational factors” located a total of 180 articles.

Due to the vast numbers of the articles located all abstracts and citations were reviewed and assessed; thus further refining the search to a total of 138 articles. Where required, these articles were obtained from the Curtin University Library collection and journals.

Information from Occupational Health and Safety journals, legislation and codes of practice were also accessed and relevant research results used. 31 online articles were retrieved for use, as were 8 conference reports. Information from 6 Post-Graduate and Masters’ theses was included in the research literature review so to represent the broadest possible range of relevant academic literature.

The Curtin University library collection of books and journals was searched for information on the prevention of ill-health, injuries and workers’ compensation claims. From this, information from 31 books has been cited.

The Western Australian Work Cover websites were explored to identify relevant research reports on scheme data and performance. Available publications displayed on the site were also explored. This was conducted for all schemes in Australia. A total of 19 research reports on scheme data and performance were located and 20

government documents on associated topics. In total, 2 laws, 1 Code of Practice and 2 standards are cited in this research report.

Articles that were specific to Red Flag conditions or only relating to ill-health or injuries associated with mental health were excluded from the search. Articles that were not published or not from a credible source were also excluded from this research. Some of the reviewed publications were published by the same collaboration of authors, although a different first author was used. For publications that had similar information only the most recent publication was included.

Out of the total searched, 238 articles, book chapters, reports and government legislation establishing a link between the review topics are included in this research report. The following Figure 5 displays the systematic literature process that was followed for this research and the steps conducted to identify the literature reviewed as part of the literature review process.

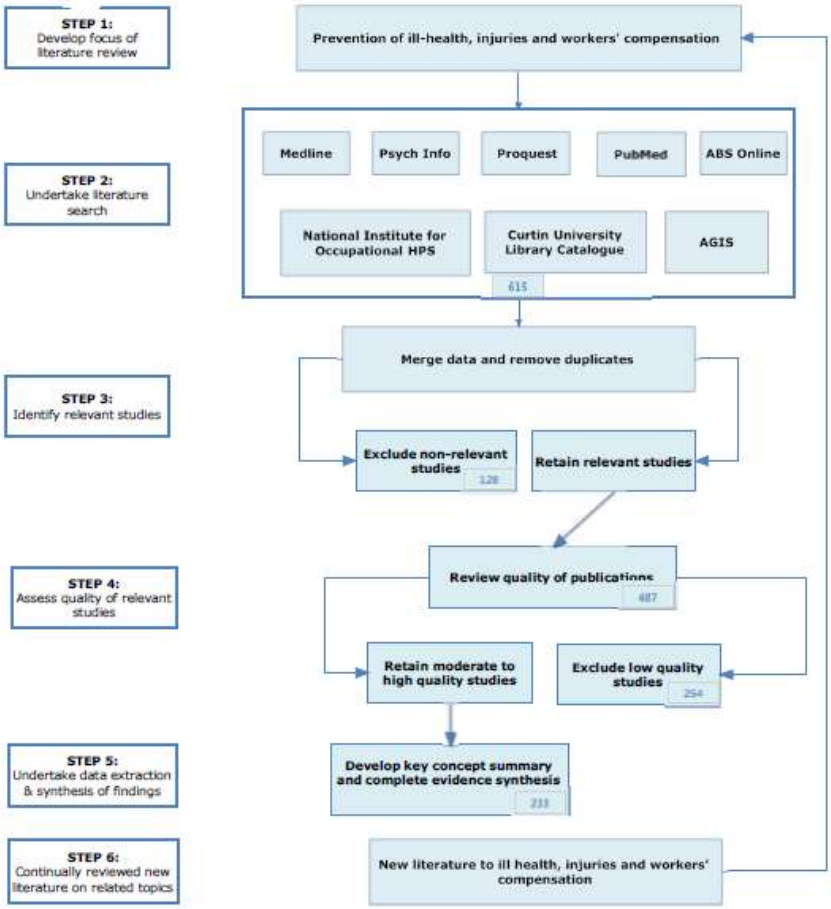


Figure 5: Systematic Literature Review process.

3.3 What are Long-duration Claims?

LDCs are defined as claims where the employee has lost more than 60 days off work or inability to perform their pre-injury role for 60 days (WorkCover WA, 2011a).

LDCs comprise three (3) categories of claims:

Category 1

An injury or claim where, due to the extensive nature of the physical injury the worker is unable to return to gainful employment or employment opportunities are significantly limited due to the nature and extent of the injuries. An example of this is a person who may be confined to a wheelchair.

Category 2

An injury or claim where due to injury the worker is required to be retrained into an alternative role where they may have limited skills or are unable to secure employment at a remuneration level equivalent to their pre-injury rate. An example of this may be a tradesperson who is unable to continue their trade and requires a sedentary role.

Category 3

Injury or claim where the level of injury and continuing disability is difficult to diagnose or there is limited pathology to support ongoing level of disability. This category of claims often displays a number of other characteristics that appear to be contributing to the injury or level of disability such as psychosocial, behavioural and organisational factors.

This research specifically looked to explores and gain further understanding of the literature relating to the injuries and claims where the latter category (Category 3) applies. This research sought to further explore the pre injury variables that may contribute to likelihood of development of a Category 3 LDC.

The majority of incapacity payments in the UK, as elsewhere, go to people with relatively minor health complaints (Burton, Waddell, Bartys, & Main, 2003) such as musculoskeletal, mental health and cardio-respiratory conditions. Many of these conditions are potentially remedial and indeed for many a return to normal work is a realistic option (Burton et al., 2005).

Research undertaken by the International Underwriting Association of London (IUA) and Association of British Insurers (ABI) Rehabilitation Working Party (2004) assists in highlighting the nature and scope of those LDCs falling within category 3. The IUA/ABI Rehabilitation Working Party (2004) found that in about 20-30% of personal injury cases the victim suffers disability and distress

significantly greater than might be expected from the injury alone. In about 5% of cases the physical and social outcomes are adversely affected to the extent that cannot be explained by the initial or remaining injury. The IUA/ABI model refers to these outcomes as 'Apparently Disproportionate Outcome' (ADO), and notes that it can have a significant effect on the cost of treatment, complexity of case handling, rehabilitation and compensation outcomes.

The mechanisms for developing an ADO is provided in some detail in the IUA/ABI Rehabilitation Working Party report (2004), noted that the main factors are psychosocial based on individual beliefs and perceptions, together with practices in medicine, employment and compensation systems. It notes that in the worst cases, the operation of these factors can lead to permanent incapacity for work and profound withdrawal, even in cases where the initial injury was apparently minor.

3.4 Long-duration claims – defining the problem

The Australasian Faculty of Occupational & Environmental Medicine (2010, p. 9) reported that "Sickness absence, work disability and unnecessary exclusion from employment are major issues, not only in Australia and New Zealand but in industrialised countries around the world' and 'the associated costs are substantial".

Research has shown that LDCs nationally and internationally represent billions of dollars in costs to worker's compensation schemes and to governments (Bernacki et al., 2007; Fritz & George, 2002; Hashemi, Webster, Clancy, & Volinn, 1997). This is despite representing a small percentage of claims in any system; LDCs account for the significant majority of scheme costs in every Australian worker's compensation jurisdiction.

There has been a steady rise in the levels of medically certified absenteeism in Australia in the past 9 years. Recent Australian statistics show increasing levels of employee requests for sickness certificates from their medical practitioner – up by

70% in the 9 years prior to 2010 (Australasian Faculty of Occupational & Environmental Medicine, 2010). In 2013, Direct Health Solutions completed an absenteeism survey of their clients, which included 108 companies and 450,000 employees. The data showed that 71% considered absenteeism to be a significant cost to their organisation, with in particular stress and anxiety related absences to be on the rise within the previous 12 months (Direct Health Solutions, 2013).

Workers' compensation systems reflect only part of the work related injury, illness and disability within Australia. Under reporting as a result of unwillingness to make a claim, an employee's lack of understanding of the relevance of their illness/injury to the work setting and structural issues pertaining to specific workers' compensation schemes pose the likelihood that a significant number of work related health issues may go undetected and this may be reflected in the growing levels of absenteeism within Australia (Safe Work Australia, 2011b).

3.4.1 Statistics Long-duration claims

A review of National worker's compensation statistics and Western Australian scheme statistics was conducted to gain a better insight as the scope and cost of LDCs in Australia today.

Both in Western Australia and nationally men account for the majority of claims (Safe Work Australia, 2012b, 2014c; WorkCover WA, 2011a, 2014). Frequency rates generally increase with age, however in Western Australia workers between the ages of 15 and 19 years were observed to have the highest claims frequency rate, sharing this with workers aged 60-64 (WorkCover WA, 2014). Between 2009/10 and 2012/13 the frequency rates for 15 to 19 year old workers was 10.5 in comparison to 60 to 64 year old workers which was 11 and for greater than 65 years the frequency rate for making a workers' compensation claim was 9.2 (WorkCover WA, 2014). For the same period of time for workers aged 15 to 19 years 11% (lowest %) of their claims were long-duration (60+ days or more away from work) while for employees over 65 years old 35% (highest %) of their claims were long-

duration (WorkCover WA, 2014). The percentage of long-duration claims increased as the workers age group increased in age (WorkCover, WA, 2014).

3.4.2 National Statistics

Safe Work Australia provided 2013 and 2014 statistics on workers' compensation scheme data and the total number of long-duration claims. The 2014 Safe Work Australia report on incidence of long terms claims by jurisdiction per 1000 employees by scheme, as shown below in Figure 6.

Figure 6: Incidence of Long-duration claims by Scheme (Safe Work Australia, 2014c, p. 13)

Safe Work Australia 2013 (p. 39) advise that "This report does not display median time lost and median compensation paid for claims lodged in the 2012–13p financial year as those claims are likely to be open and the claimant may accrue more time off and payment in subsequent years". As such the most update to-date data on the breakdown of LDCs in terms of the percentage of LDC and costs of claims can be located on the 2012 Safe Work Australia review of LDC claims. In this review Safe Work Australia (2012b) advises that LDCs or long-tail claims have been a focus of workers' compensation schemes in an attempt to manage and contain costs.

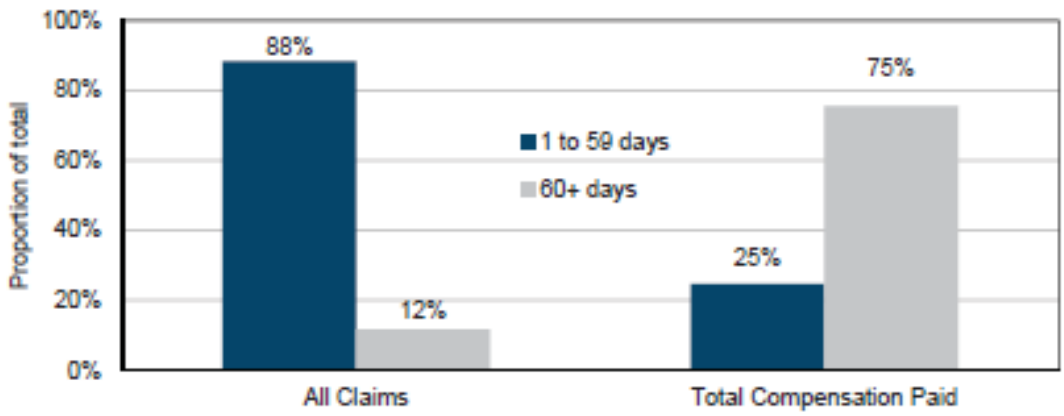


Figure 7: Proportion of claims and compensation paid by claim duration (Safe Work Australia, 2012a, p. 18)

While the total number of accepted workers' compensation claims decreased by 11% in the period from 2003/04 to 2008/09, this decrease was driven by a reduction in short-term claims rather than long-term claims. The number of claims with between 1 and 4 days lost as a result of work related illness or injury dropped by 15% over the six year period and the number of claims with 5 to 19 days lost fell by 11% over the same period. In contrast, claims with 60 to 179 working days lost increased by 13% during this period (Safe Work Australia, 2012a).

Very long-duration claims i.e. 180 or more days lost, decreased by 16% from 2003–04 to 2008–09. While these claims account for only 5% of the total number of claims they make up 60% of compensation scheme costs nationally (Safe Work Australia, 2012).

Examination of the breakdown of long-duration claims shows 42% were due to Sprains & strains of joints & adjacent muscles, while a further 12% were classified as mental disorders (Safe Work Australia, 2012b). Sprains and strains of joints & adjacent muscles (musculoskeletal injuries) were found to be the most common injury reported both Nationally and in Western Australia (Safe Work Australia, 2012b, 2014c; WorkCover WA, 2011a, 2014).

3.4.3 Western Australian Statistics

In WorkCover WA's Annual Statistical Report for the period 2009/19 to 2012/13 published in 2014, the review revealed that in 2012/13, there was a total of 38,630 claims lodged within the Western Australia workers' compensation scheme. Of these claims, 37,396 claims were for a work-related injury and disease claims; 18,433 claims had no lost time and 18,433 claims with lost time (WorkCover WA, 2014). This information is displayed in the Figure 8 below.

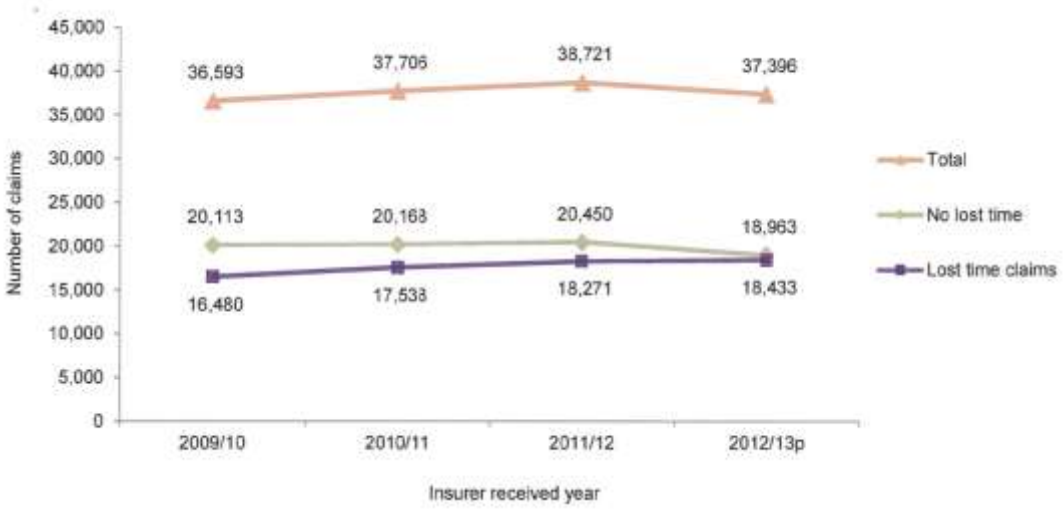


Figure 8: Number of claims lodged for 2009/10 to 2012/13 by lost time (WorkCover WA, 2014, p. 13)

Figure 8 also shows the total amount of claims lodged in the scheme since 2009/10, with the number of claims with lost time and no time for the same period. Over this four-year period (while there has been an overall reduction in the number of worker's compensation claims), there was a shifting trend towards claims being of longer duration (WorkCover WA, 2014). The total of claims with lost time increased by 28% over the period 200910 to 2012/13 as outlined in Figure 2 in Chapter 1 (WorkCover WA, 2014).

WorkCover WA (2014) advised that for the 2009/10 to 2012/13 period that SDC represent 73.4% of claim numbers and 16.9% of the total costs of payments for lost

time claims. This is in comparison to LDCs that represent 26.6% of claims and 83.1% of the total costs for lost time claims (WorkCover WA, 2014). This is displayed in the Figure 9 below.

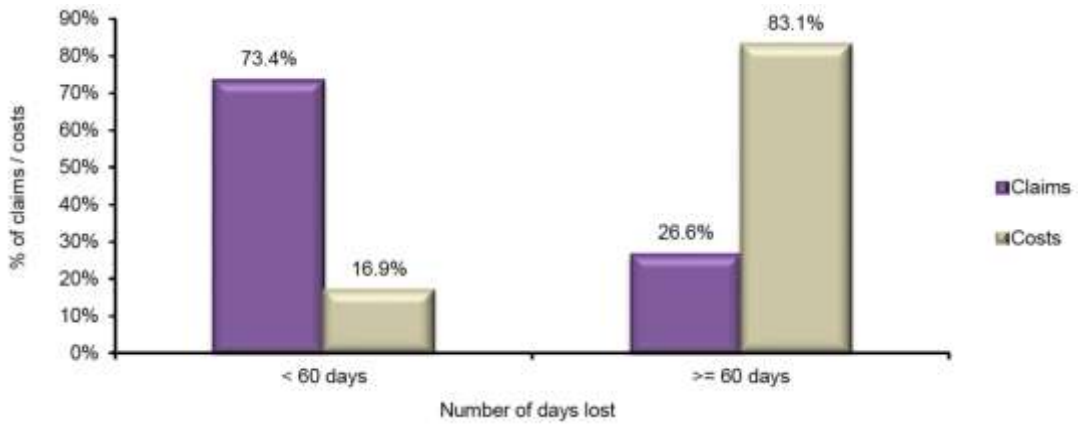


Figure 9: Percentage of claims and costs by days lost 2009/10 to 2012/13 (WorkCover WA, 2014, p. 18).

The Price Waterhouse Cooper review (2014) reflected the current Western Australian scheme performance with the key findings noted as:

- The number of claims reported decreased in December 2013 and were lower than all quarters since September 2011.
- The number of claims with more than 60 days' time lost increased as a total percent of the total claims. PWC noted that LDCs were lengthening due to slower finalisation rates, higher payments and increased case reserves.
- Claim payments showed a strong increasing trend in total payments for the scheme.
- Case estimates increased significantly, continuing the strong increasing trend.

(Price Waterhouse Coopers, 2014)

In this review PWC found a decrease in the total number of claims reported each quarter since June 2012 with the exception of a slight increase in the June 2013. This decrease was due to reductions in the number of claims with less than 60 days lost. In contrast, claims with more than 60 days lost increased, in September 2013 to be at

its highest level over the last two years, with these figures continuing to develop as claims data matures (Price Waterhouse Coopers, 2014).

Table 5: Proportion of LDC claims and costs 2007/2008- 2012/2013 (WorkCover WA, 2011a, 2012c, 2013, 2014).

Year	% LDC claims as proportion of all lost time claims	% cost of LDC proportion of all claims costs
2007/2008	22	83
2008/2009	24	83
2009/2010	26	82
2010/2011	27.9	81.6
2011/2012	28.8	82.4
2012/2013	26.6	83.1

Over the 6 year period (as noted above) there was an increase in the total number of LDCs in the WA scheme from 22% to 26.6 % of all lost time claims - an overall increase of 4.4%. In terms of the total cost of payments for LDCs in the same period LDC represented 78.1% of total costs in 2007/2008 increasing to 83.1% of costs in 2012/13 - an increase of 5%.

3.5 Previous Research on Workers' Compensation or Long-duration Claims

A review of prior research relating to the relevance and impact of **pre incident variables** on Workers' Compensation systems and more specifically LDCs, located limited research to critically review. Barling (2003) commented that despite the enormity of expenses associated with long-duration claims, to date, there has been no sustained empirical focus on the attitudinal outcomes of workplace accidents, a significant omission given the potential conceptual and practical ramification of this link (Barling et al., 2003).

The studies reviewed highlight issues pertaining to the disproportionate cost of LCD's within worker's compensation systems both in Australia and internationally as well explore the range of overlapping opinions regarding the key individual, psychosocial and organisational pre injury variables that may have a notable impact on the prevalence and severity of LDCs.

Hashemi *et al.* (1997) explored the psychosocial variables associated with low back pain. Their research identified that the majority of patients with work-related low back pain are able to return to work within 4 to 8 weeks after the onset of pain (Hashemi et al., 1997). Hashemi *et al*. identified those workers who do not return to work after this time become increasingly unlikely to return to work. In a study in 1996 of 16,987 people with work related low back pain requiring absence from work, it was established that 66% of the workers returned to work in 4 weeks. After 1 year, 95% of the workers had returned to work, but those remaining off work accounted for 65% of total costs of all workers' compensation claims (Hashemi et al., 1997).

Western Australian research by the School of Occupational Therapy at Curtin University (2001) studied approximately 29,000 injured workers and found that 66% return to work within 8 weeks, but those that did not (LDCs) accounted for 75% of the costs of all claims.

Bernacki *et al*. (2007) investigated 729 claims lodged with Louisiana Workers' Compensation Corporation that were thought to be low cost claims. It established that the most significant predictors of cost escalation and subsequent development of an LDC was multi-factorial and included male gender, small company size, high premium, reporting delays, older age, claim duration and attorney involvement. Whilst these injuries accounted for 2% of all claims, they accounted for 32.3% of the costs of claims in the system (Bernacki et al., 2007).

Whilst differences exist between Western Australian and Louisiana compensation systems, the findings of Bernacki *et al.* (2007) show similar factors to that identified in this research; that being that while LDCs represent a small proportion of claims, they represent the majority of claims costs and result from multiple individual, organisational and psychosocial variables, rather than the nature and extent of the injury itself.

Schultz *et al*. (2002) examined individual psychosocial predictors, pain behaviour, medical / physical examination, workplace organisational characteristics and workers' compensation related variables to predict significant disability in participants. The study included 18-60 year old employees who had lodged a claim with the Workers' Compensation Board of British Columbia (WCB). Participants off work 4 to 6 weeks post injury were classified as sub-acute and off work 6 to 12 months as chronic.

Schultz et al. (2002) included participants with a chronic lower back injury. Consenting participants underwent a full musculoskeletal assessment, followed up by a follow up assessment 3 days later and a subsequent assessment at 3 months period. Participants were required to complete a self-assessment questionnaire that assessed pain, depression, anxiety, social support at home and work, general health status, perceptions of disability, work satisfaction, the workers recovery expectation and the workers perception regarding the Workers' Compensation Board and employers response to the claim. Demographic variables, union membership, number of full time jobs in the last 5 years and total years with current employer were also obtained (Schultz et al., 2002).

Results showed that workers whose pre injury role demonstrated (1) lower levels of psychological and physical demand, (2) less requirement for co-worker support (3) less skills discretion, had greater success in returning to their pre injury work role comparative to those workers where there was higher demand for the variables noted above. In addition these same workers achieved a return to their pre injury role in a

shorter timeframe comparative to those workers with higher demand for the above noted variables (Schultz et al., 2002).

Workers with a better perception of recovery and a better health transition score also had better return to work rates. Data analysis of variables in health transition and expectation of recovery alone correctly identified 77.7% of worker who returned to work and 69.7% of workers who did not return to work (Schultz et al., 2002) According to Schultz *et al.* (2002), no other psychosocial or workplace variables add predictive value to the model.

Whilst Schultz *et al*. (2002) study relates to an alternative workers' compensation system containing some differing characteristics and entitlements to that of the schemes investigated in this research, the study has looked at individual, organisational and psychological variables to explain the existence of LDCs. Further Schultz *et al*. (2002) identified variables other than the nature and severity of the injury as determinants of the success of return to work interventions and outcomes.

Later research by Schultz *et al.* (2005), noted the proliferation of a lengthy lists of risk factors for chronic disability and economic difficulties called yellow, blue and black flags. Despite the growth of these lists, research validating these *risk factors* (flags) was only just emerging (Schultz et al., 2005).

In response to this lack of validation Schultz *et al.* (2005), performed a cohort longitudinal study of compensated low back injured employees who had remained off work 4 to 6 weeks after the original injury. The study was conducted on claims lodged with the Workers' Compensation Board of British Columbia (WCB). The WCB identified eligible claims on a weekly basis during the study period and invited the injured workers to participate. The study used variables such as demographic, clinical and occupational variables.

Results revealed that at the 3 month mark 64% of respondents had returned to work. Of those who had not returned to work 33% had tried to make an attempt to return to work. Shultz *et al.* (2005), identified that there was no significant association between return to work status and demographic information such as age marital status, number of children etc. Schultz *et al.* however did note there was a marginally significant difference with respect to union membership of those who had returned to work, specifically 67% were union members compared to 50% of non-RTW participants (Schultz et al., 2005).

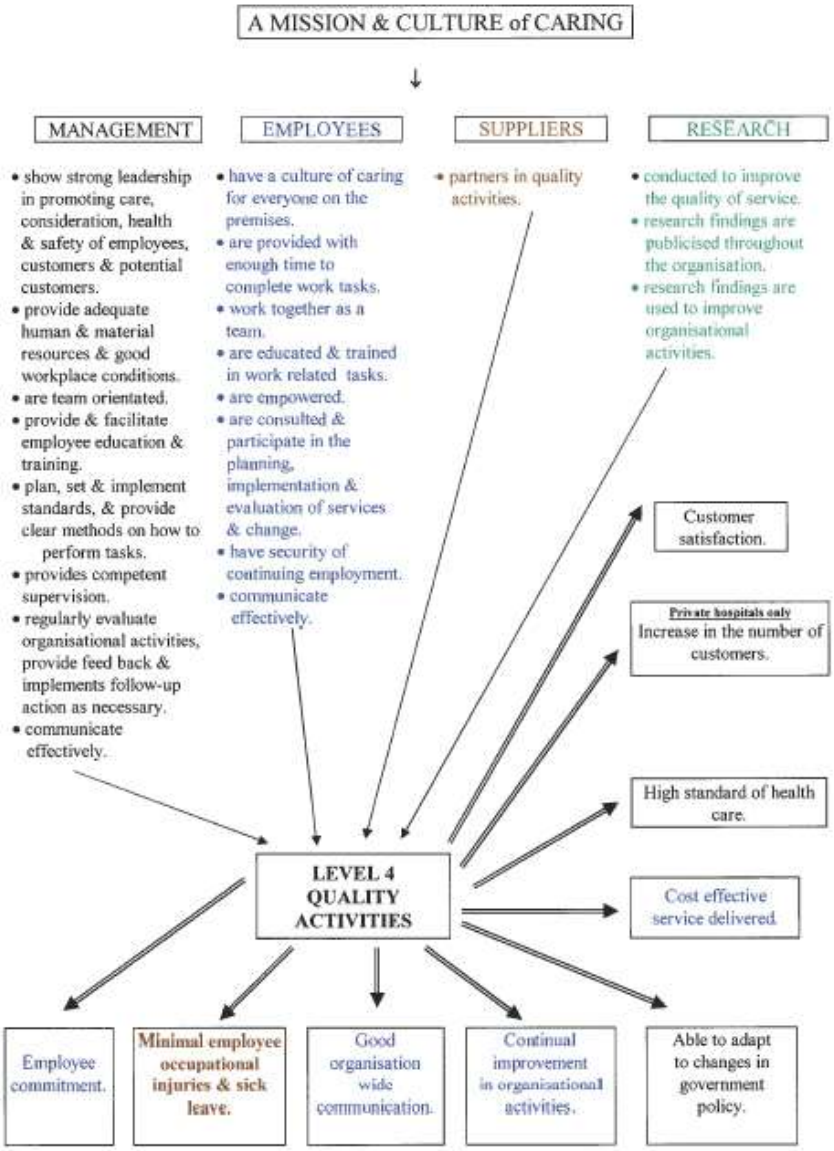
In addition to union membership the variables considered as significant from this study were, expectation of recovery, employer support and response, physical functioning, vitality, mental health and health transition (Schultz et al., 2005).

Smith *et al.* (2014) study explored short term disability (STD) and long term disability (LTD) claims reported to WorkSafe British Columbia. The objective of the study was to examine whether the relationship between older age and three consequences of work injury (health care expenditure, days of wage replacement and long term disability) are exacerbated when occupational demands are higher, compared to when they are lower (Smith et al., 2014).

The results of this study revealed older age and higher occupational demands were both associated with worse injury outcomes. There was no evidence that the relationships between age and these outcomes were exacerbated when occupational demands were higher (Smith et al., 2014).

Wickizer *et al.* (2011) researched workers' compensation healthcare providers of organisations who had implemented best practice injury and workers' compensation claims management. Wickizer *et al.* (2011) found that the lack of effective financial incentives and organisational support for quality improvement was a major impediment to progress and that 5% of patients account for the great majority of expenditure, equating to 65%. Wickizer *et al*. (2011) revealed that patients of best practice organisations were less likely to experience extended work disability.

Research on whether certain individual, organisational and psychosocial variables can have a positive effect on the nature and prevalence of LCD's. Jansz (2014) found that organisations that have a culture of caring for everyone who comes onto the business premises have minimal occupational injuries, minimal employee sick leave and a high level of employee commitment to the organisation, in turn increasing



organisational profitability. This Quality Care model is provided in Figure 10 below.

Figure 10: Quality Care Model (Jansz, 2014, p. 93).

This demonstrates that organisations who have a mission and culture of caring, proactive internal systems with good leadership, sound health and safety practices, clear guidance and instruction on how tasks are to be performed and open and effective communication have a number of positive outcomes.

In these 'best practice' organisations, the incidence of LDCs were low, directly linking good management practices with the prevention of workers' compensation claims (MacEachen, 2013; Mussett, 2001; Smith et al., 2014; Wickizer et al., 2011, Jansz, 2014).

Research detected that there were a number of studies specific to sick leave not related to a compensable workers' compensation system. Van den Hout *et al.* (2003) and Nicholas, Linton, Watson & Main (2011) were such studies that explored long-duration sick leave in patients suffering lower back pain. These studies looked at individuals who had periods of sick leave in excess of 120 days. Such studies have parallels to this research in that causation and factors that contribute to the disability and the length of disability are explored. Whilst differences exist between a compensable workers' compensation system and private or social security systems it is proposed that observations and similarities can exist and information can be obtained that allow further information to be added to this area of research.

3.6 The History of Psychosocial Research

The emergence of an understanding of the influence psychosocial factors have on the success on an individuals' recovery following illness or injury and their return to normal levels of functioning (in particular work) first began in the late 1980's and early 1990's with the rise of repetitive strain injuries (RSI's). RSI's were a major cause of worker's compensation claims and considerable research and effort was invested to develop methods to prevent and reduce the effects of Repetitive Strain Injury in the workplace.

Back pain/injury, a significant cause of disability both work related and non-work related overtook RSI in late 1990's as the major cause of injury/disability in the workplace and in the community as a whole. Like RSI's, back pain/injuries gained much attention and scrutiny due to the inability to explain the cause of the level of disability. Consequently, greater clarity in research was required to explain and explore the cause of the disability. It was at this point that psychosocial factors and modelling gained greater attention.

Professionals and agencies that fund health care, have sought increased surety regarding the efficacy of treatment regimes, specifically in relation to patients (with lower back problems) that exhibit concerns associated with their reported injury, pain or disability. This scrutiny has given rise to the emergence of significant research and a number of reviews of the psychosocial factors relating to low back pain and how they relate to the development and ongoing existence of lower back pain in patients. Summarised below in Table 6.

Table 6: A brief modern history of Back Pain 'Task Forces' and Guidelines (Kendall, Linton, & Main, 2002, p. 548).

1987 The Quebec Task Force on Spinal Disorders (QTFSD), Canada (Spitzer et al) • Emphasised the magnitude of the problem; • Identified the major obstacle presented by the lack of consistent classification or diagnoses; and • Psychosocial issues were perceived as merely secondary reactions and not relevant to early management.
1993 WorkCover South Australia (WorkCover Corporation) • Made an attempt to simplify classification with a frequently overlooked major new proposal that the classification of "back strain" should only be allowed for a maximum of 8 weeks • Otherwise, it was a description of usual clinical practice, with no attempts to provide critical reasoning analysis; and • Psychosocial assessment appended, with an untested scale to indicate risk of work loss.

1994 Agency for Health Care Policy and Research (AHCPR), US (Biogos et al)

- Large scale literature review using an expert panel methodology;
- Review of scientific evidence based on operationalised criteria with recommendations made on the basis of evidence; and
- Psychosocial issues acknowledged and emphasised, but not well articulated.

1994 Clinical Standards Advisory Group (CSAG), UK (Clinical Standards Advisory Group)

- Strong statements about the magnitude of the problem, and the economic costs;
- Recommendations based on the AHCPR (US) literature review;
- Acknowledgement of psychosocial issues, with the recommendation to adopt a biopsychosocial model; and
- Recommendation for comprehensive (bio-psychosocial) assessment at 6 weeks.

1995 Pain in the Workplace Task Force (PIW), International Association for the Study of Pain (task Force on Pain in the Workplace)

- Emphasis on new category called "nonspecific LBP"; and
- Controversial recommendations to purchases of compensation systems, including cessation of payments for treatment and transfer to unemployment status at 7 weeks.

1995 Quebec Task Force on Whiplash Associated Disorders (QTWAD), Canada (Spitzer et al)

- Emphasis on classification, followed by management plans;
- Recommendations for mandatory compulsory assessment either at 6 or 12 weeks depending on the classification of severity grade; and
- Mandatory multidisciplinary assessment to include expertise and psychosocial expertise.

1996 Accident Rehabilitation & Compensation Insurance Corporation (ACC) and National Health Committee (NHC), NZ

- Reprint of the AHCPR guidelines at "Spine in Action" Conference in Christchurch January 1996;
- Post-conference seminars emphasised the prevention of chronicity; and
- Feedback from the interested group resulted in the formation of task force to develop New Zealand version of the guides, including psychosocial factors.

1996 Royal College of General Practitioners (RCGP), UK (Waddell et al) • Revised edition of CSAG guidelines; • Stronger recommendation about return to usual activities; • Recognition at the highest level of evidence that psychosocial factors are important in chronic low back pain and disability; and • Recognition that psychosocial factors are more important at early stages than previously considered.
1997 Accident Rehabilitation & Compensation Insurance Corporation (ACC) and National Health Committee (NHC), NZ (ACC and National Health Committee) • Publication of the New Zealand Acute LBP Guide; and • Publication of the Guide to Assessing Psychosocial Yellow Flags: Risk Factors for Long-Term Disability and Work Loss.
1999 Royal College of General Practitioners (RCGP), UK (Royal College of General Practitioners) • Updated version of UK guide, contained only two differences from the 1996 edition in principle recommendations: • Noted that the optimum timing for the use of the manipulation is unclear; and • Adoption of the New Zealand –developed concept of Yellow Flags.
1999 Accident Rehabilitation & Compensation Insurance Corporation (ACC) and National Health Committee (NHC), NZ (ACC and National Health Committee) Updated 1999 version of the New Zealand Acute Low Back Pain Guide based on systematic review of the back pain literature since January 1997.

Building on the body of research contained in the above reviews into the causes of lower back pain Kendall (2002) noted that lower back pain was seen to be as a result of a wide range of factors such as:

- Occupational factors - including heavy work, static work postures; frequent bending and twisting, repetitive work, vibrations,
- Individual factors - including age and sex, posture, anthropometry, muscle strength, physical fitness, spine mobility and smoking
- Psychosocial work factors (Kendall et al., 2002).

According to Kendall the actual level of disability resulted from a number of phases and sets of contributing factors at each of these stages. This is demonstrated below:

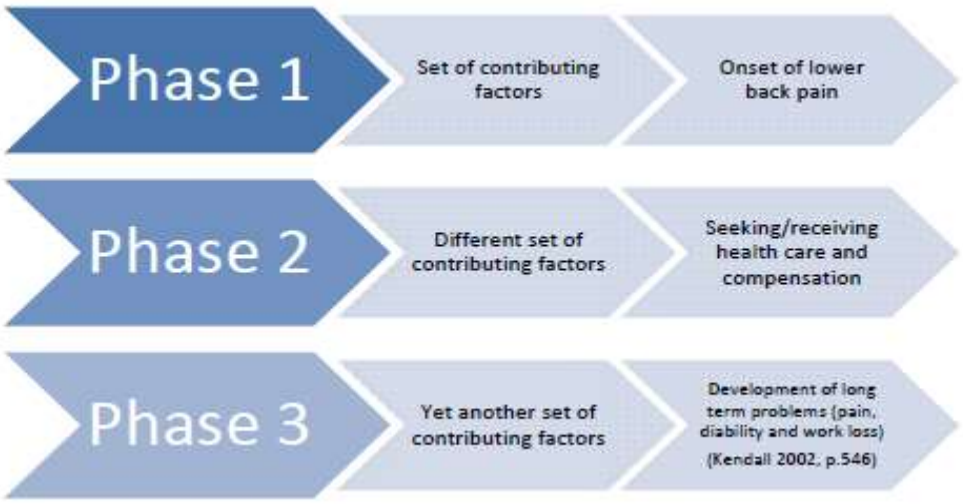


Figure 11: Phases of factors that affect lower back pain (Kendall et al., 2002).

Therefore according to Kendall an insignificant injury can result in disproportional pain and disability due to a number of factors unrelated to the injury, factors that may include individual coping strategies, beliefs, perceptions, to name a few. This research looks to investigate factors that existed prior to the injury or incident, which is in line with primary interventions and consistent with Phase 1 of Kendall's model discussed above in Figure 11.

Phase 2 relates to events and management of the injury or secondary interventions, post incident. Phase 3 relates to the ongoing squeal of management and intervention required to manage the return to work and workers' compensation claim known as tertiary intervention.

Kendall commented that psychosocial factors were no longer considered as mere secondary reactions of little or no consequence and that many of the learned behaviours recognised as chronic pain-related disability have their genesis in the first few weeks of the problem (Kendall et al., 2002).

3.6.1 What is Psychosocial Modelling

According to Kendall, Linton and Main (1997) the term psychosocial refers to the interaction between the person and their social environment and the influences in their behaviour.

The social environment includes family members, friends, people at work, employers the compensation system and health professionals. Any of these factors have the potential to affect the person (with back pain).

The interactions with these factors and the individual may influence behaviour, levels of distress, attitudes and beliefs and subjective experiences of pain. Even well intentioned actions can inadvertently result in counterproductive outcomes (Kendall, Linton, & Main, 1997).

The bio-psychosocial model of back pain and disability emphasise the interaction between multiple factors that may contribute and result in the disability and duration of disability. A psychosocial factor in a work related case can include such examples as dissatisfaction at work stress in the work place and can be a better predictor for chronic lower back pain (Truchon, 2001).

Schultz *et al.* (2004) focused on the identification and testing of potential psychosocial factors that contribute to occupational lower back pain and disability. In this research the authors explain that psychosocial predictors originate from five traditions of psychosocial research. These are psychopathological; cognitive; diathesis-stress; human adaptation; and organisational psychology (Schultz et al., 2004).

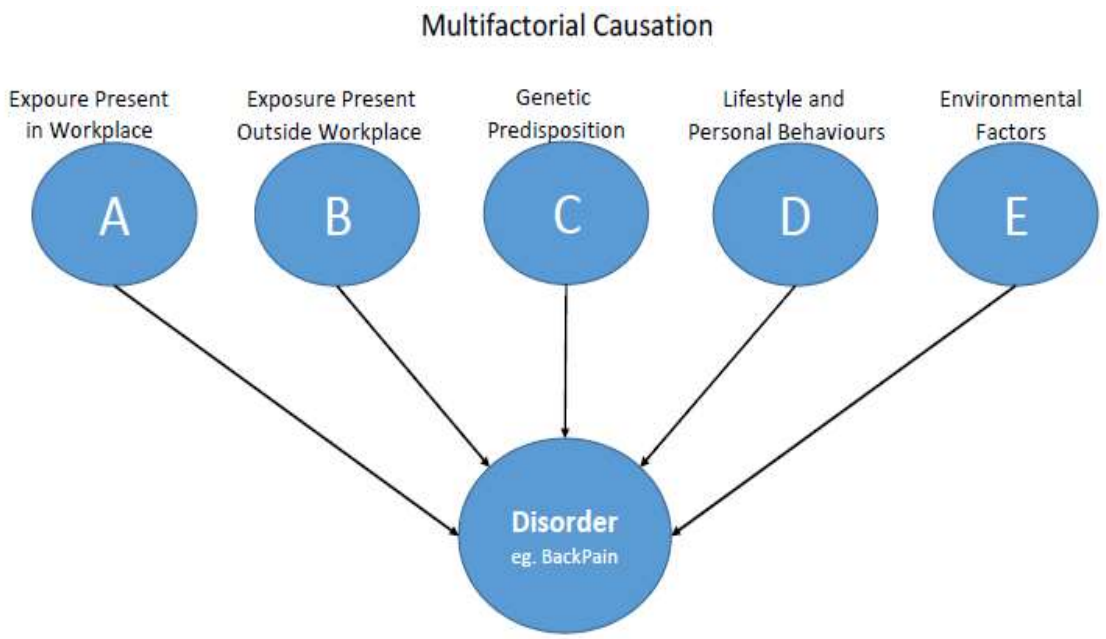
Schultz *et al*. (2004) provide further clarification on what is meant by psychosocial and the origins, discipline and characteristics are summarised in the following table:

Table 7: Origins of psychosocial modelling (Schultz et al., 2004, p. 78).

Psycho-pathological	Cognitive	Human adaptive	Combination of diathesis-stress, cognitive & adaptive perspectives	Organisational psychology
• Pre-disposing personality or psychopathological factors. (Cherkin, Deyo, Street, & Barlow, 1996; Crook, Moldofsky, & Shannon, 1998; Engel, Von Korff, & Katon, 1996; Feuerstein & Thebarge, 1991; Gatchel, Polatin, & Mayer, 1995; Klenerman et al., 1995; Main, Wood,	• Beliefs; • Perceptions; • Expectations of control; and • Self-efficacy as they relate to pain and disability.	• Coping beliefs; and • Coping styles. (Burton, Tillotson, Main, & Hollis, 1995; Klenerman et al., 1995; Linton & Buer, 1995; Tate, Yassi, & Cooper, 1999) Factors include perceived support from peers, supervisors and family and how these may be predictive of pain and disability (Feuerstein, Berkowitz, &	• Fear, • Catastrophising; • Avoidance; and • Greater experiences of pain and disability. (Turk, 2002)	Work stress; • Poor job satisfaction; and work performance; • Availability of unscheduled breaks; • Job modification, • Job demands; • Work quantity, • Monotony/ work tempo; • Lack of control; and • Problematic relations with co-workers have predictive value on pain and disability. (Bigos et al., 1991; Coste, Delecoeuillerie, De Lara, LeParc, & Paolaggi, 1994;

Hollis, Spanswick, & Waddell, 1992; Thomas et al., 1999; Turk, 2002)		Huang, 1999; Krause, Ragland, Greiner, Syme, & Fisher, 1997; van der Weide, Verbeek, Sallé, & van Dijk, 1999)		Hemingway, Shipley, Stansfeld, & Marmot, 1997; Infante-Rivard & Lortie, 1996; Krause, Frank, Dasinger, Sullivan, & Sinclair, 2001; Thomas et al., 1999; van der Weide et al., 1999)

Dembe (2003) depicted the multi-factorial causation of psychosocial aspects relating to workplace injuries. Dembe (2003) in his model shows those factors within the



injured employees social and work environments that are associated with the injury and insurance claim process. Dembe's theory is outlined in Figures 12 and 13 below.

Figure 12: The Multi-factorial causation of psychosocial aspects relating to workplace injuries (Dembe, 2003 p.78).

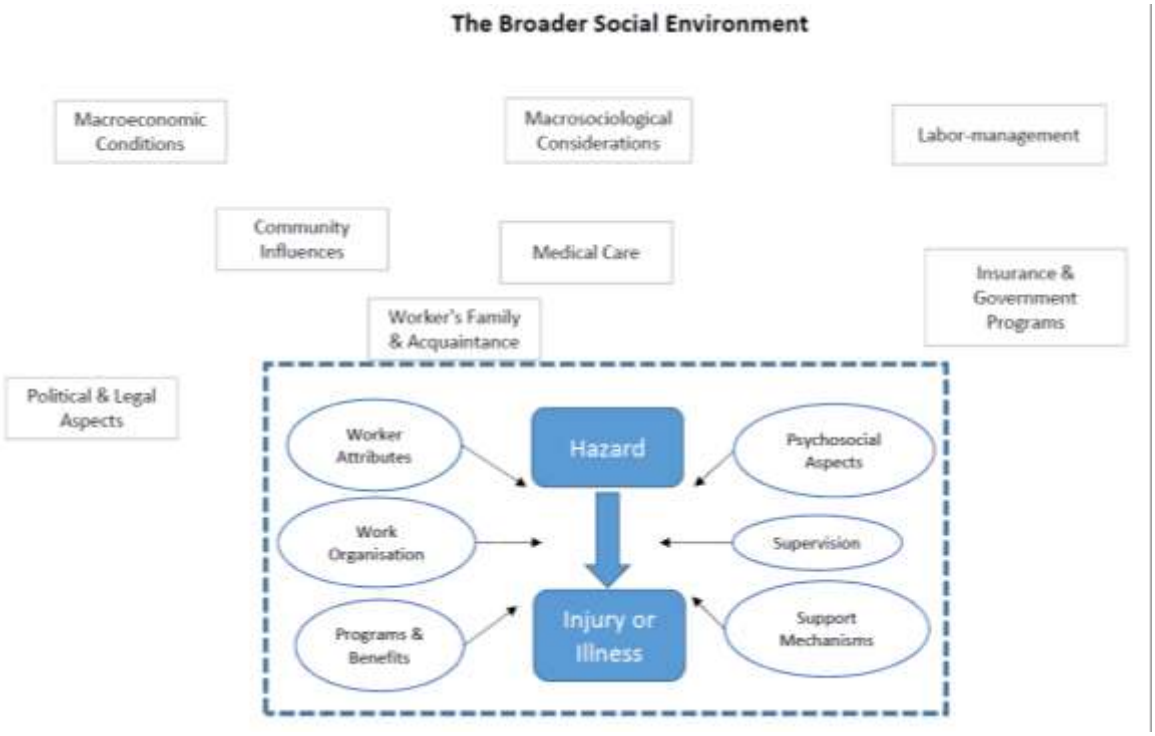


Figure 13: How the broader social environment affects psychosocial reactions to injury or illness (Dembe, 2003 p. 15).

3.6.2 Psychosocial Flags

The Flag theory originated in New Zealand. It was seen as a method of outlining an approach for the assessment and treatment of lower back pain to prevent chronic pain and disability, post injury.

The New Zealand Acute Lower Back Guide (Kendall et al., 1997) uses the terminology of Red and Yellow Flags, where Red Flags indicate physical risk factors; and Yellow Flags indicate psychosocial risk factors. Kendall's work on Yellow flags has influenced a range of other writers. Yellow Flags represent the factors that may increase the risk of developing or perpetuating long-term disability and work loss, where there is little pathology to support or substantiate the injury. The Guide identifies the main categories of psychosocial factors as Attitudes and Beliefs, Emotions, Behaviours, Family, and Compensation Issues (Kendall et al., 1997).

Subsequent research on the ‘Flags Model’ expanded the model and saw the introduction of other flags included into the model (Main & Burton, 2000). These include blue flags - made up of as those factors that indicate an individual's perception of work and their work environment. Black flags - indicating work conditions that could inhibit rehabilitation; and red flags - indicating abnormal psychological processes or drug abuse (Kendall et al., 1997; Shaw et al., 2009; The IUA/ABI Rehabilitation Working Party, 2004; Work Performance UK, 2009).

Flag models attempt to highlight those factors that pre-dispose a worker to long-duration incapacity. Developing effective pre-injury/claim flag models is therefore a key ingredient in reducing tension in workers’ compensation systems. Focusing on the prevention of long-duration claims, rehabilitation and injury management assists to meet the conflicting interests of the key stakeholders in the workers’ compensation process a number of commentators in this area have developed and further expanded the concept of the ‘Flags Model’ to predict potential long-term disability post injury.

Additionally some commentators believe that the prevention of LDCs lie in the prevention of specific factors – these include individual, organisational and psychosocial factors that exist with employees and within workplaces prior to an incident resulting in ill health or an injury occurring (Cotton, 2009; Shaw et al., 2005; Shaw et al., 2009).

From the body of research as noted in the above Task Force Studies considerable insight was gained on flag models and their effect on injury and/or pain not just relating to patients with back pain, but all injuries. Table 8 below outlines the origins and nature of flag theory. Flags were seen as markers of risk factors in musculoskeletal and pain disorders. The original flags consisted of five flags, these being red, yellow, blue, black and orange flags.

Table 8: Flags and Management requirements (Carvalho, 2007).

Flag	Origins	Indicators/ Management Requirements
Red flags	Introduced in the UK and the US in 1993	Signs of serious pathology in patients with that require urgent surgical opinion.
Yellow flags	Introduced by Chris Main, professor of clinical psychology (pain management) at Keele University New Zealand in 1997	Point towards psychosocial factors such as depression and the patient's beliefs about their condition.
Blue flags	Introduced in 2000 by Kim Burton, Director of the Spinal Research Unit at the University of Huddersfield and Main	Relate to an individual's perception of work and their work environment.
Black flag	Introduced in 2000	Relate to work conditions that could inhibit rehabilitation, such as a job requiring heavy lifting or the wrong height of desk in a fixed workstation.
Orange flags	Introduced in 2005	Identifies abnormal psychological processes or drug abuse. They indicate referral to a specialist is required.

3.6.3 Further Defining the Flags Model

Work Performance UK in their article 'Flags – what have they got to do with Rehabilitation?' provide an extensive overview of the Flags model and management of return to work coordination. This is summarised in Table 9.

Table 9: Flags with required action (Work Performance UK, 2009, p. 1).

Flag	Comments	Action
Red Flags	An example for back pain would be a person saying that they had lost the feeling in both legs or lost control of their bowel.	Usually immediate referral to hospital.
Orange Flags	For example a diagnosis or suspicion of psychosis, suicidal tendencies or addictive behaviours such as alcoholism.	Referral on to GP or hospital for further assessment.
	Red and orange flags should be fully investigated and treated, and this may have to be conducted before a RTW program can be planned to know what the full effect on someone's work may be.	
Yellow	They are not necessarily conscious beliefs, and may be long held and hard to change. Yellow flags are sometimes broken down into (ABCDEFW): **A**ttitudes **B**ehaviours **C**ompensations **D**iagnosis **E**motions **F**amily, and **W**ork.	Screening by a suitably qualified health professional using a questionnaire or interview technique, which then informs the rehabilitation planning.
Blue Flags	Considered to be the perceptions of the situation by the employee or employer. Blue Flags have evolved out of yellow flags as a result of a better understanding of the impact of social environments. For example where an employee feels that their manager is not supportive, but the manager may feel they are supportive, or where there is a company policy that inadvertently affects an employee's behaviours – such as a policy indicating a belief of management and employees that a person cannot return to work until they are 100% fit.	Identify through review of company systems and employee's perceptions, and then make an action plan to address those.
Black Flags	Social or cultural factors that can be an obstacle to recovery and return to work. An example of this may be a state welfare system where people may be better off staying on benefits rather than returning to work – creating a disincentive to finding new employment. Other examples may be widely held beliefs or stigmas around particular types of conditions – for instance the social belief	Identify as far as possible where black flags may influence business, agree on the management and make appropriate plans to control. It is important to take an active

	that back pain means someone cannot return to any kind of manual work, or that someone with a mental health problem cannot work. These flags are extremely difficult to influence at times needing change at national or organisational level (if in a large corporation). There is often overlap between blue and black flags.	interest in political debate on subject of welfare reforms, as if they do not affect your business directly they may have considerable indirect effect on current and/or future workforce.
Pink Flags	Recently introduced as light relief by a physiotherapist, Louis Gifford who specialises in pain management. He felt that all the other flags were very negatively orientated, so decided that instead of always looking for "bad flags" he would also look for "good flags". Pink flags are about positive things that will help a person to return to work and recover. Example might be that the person who enjoys their job, and are prepared to put in all the effort needed to get back to work.	Identify the positive factors that promote rehabilitation and use these to promote a return to work.

3.6.4 Models for Assessment of psychosocial flags

In assessing the existence and impact of Psychosocial Yellow Flags, Kendall, Linton & Main's, (1997) Acute Low Back Pain Guide provides a table for the clinical assessment of Psychosocial Yellow Flags. The following table provides factors listed with the most important at the top of the list for each category.

Table 10: Yellow Flag Factors associated with Low Back Pain (Kendall et al., 1997, pp. 40-43).

Attitudes and Beliefs about Back Pain
• Belief that pain is harmful or disabling resulting in fear-avoidance behaviour, e.g. the development of guarding and fear of movement; • Belief that all pain must be abolished before attempting to return to work or normal activity; • Expectation of increased pain with activity or work, lack of ability to predict capability; • Catastrophising, thinking the worst, misinterpreting bodily symptoms; • Belief that pain is uncontrollable; • Passive attitude to rehabilitation.

Behaviours
• Use of extended rest, disproportionate ‘downtime’; • Reduced activity level with significant withdrawal from activities of daily living; • Irregular participation or poor compliance with physical exercise, tendency for activities to be in a ‘boom-bust’ cycle; • Avoidance of normal activity and progressive substitution of lifestyle away from productive activity; • Report of extremely high intensity of pain, e.g., above 10, on a 0 to 10 Visual Analogue Scale; • Excessive reliance on use of aids or appliances; • Sleep quality reduced since onset of back pain; • High intake of alcohol or other substances (possibly as self-medication), with an increase since onset of back pain; • Smoking.
Compensation Issues
• Lack of financial incentive to return to work; • Delay in accessing income support and treatment cost, disputes over eligibility; • History of claim(s) due to other injuries or pain problems; • History of extended time off work due to injury or other pain problem (eg more than 12 weeks); • History of previous back pain, with a previous claim(s) and time off work; • Previous experience of ineffective diagnosis, treatment and case management (eg absence of interest, perception of being treated punitively); • Health professional sanctioning disability, not providing interventions that will improve function; • Experience of conflicting diagnoses or explanations for back pain, resulting in confusion; • Diagnostic language leading to catastrophising and fear (e.g. fear of ending up in a wheelchair); • Dramatisation of back pain by health professional producing dependency on treatments, and continuation of passive treatment; • Number of times visited health professional in last year (excluding the present episode of back pain); • Expectation of a ‘techno-fix’, e.g., requests to treat as if body were a machine; • Lack of satisfaction with previous treatment for back pain; • Advice to withdraw from job .
Emotions
• Fear of increased pain with activity or work; • Depression (especially long-term low mood), loss of sense of enjoyment; • More irritable than usual; • Anxiety about and heightened awareness of body sensations (includes sympathetic nervous system arousal); • Felling under stress and unable to maintain sense of control; • Presence of social anxiety or disinterested in social activity; • Feeling useless and not needed .

Family
• Over-protective partner/spouse, emphasising fear of harm or encouraging catastrophising (usually well-intentioned); • Solicitous behaviour from spouse (e.g. taking over tasks); • Socially punitive responses from spouse (e.g. taking over tasks); • Socially punitive responses from spouse (e.g. ignoring, expressing frustration); • Extent to which family members support any attempt to return to work; • Lack of support person to talk to about problems.
Work
• History of manual work, notably from the following occupational groups: Fishing, forestry and farming workers; construction, including carpenters and builders; nurses; truck drivers; and labourers; • Work history, including patterns of frequent job changes, experiencing stress at work, job dissatisfaction, poor relationships with peers or supervisors, lack of vocational direction; • Belief that work is harmful; that it will do damage or be dangerous; • Unsupportive or unhappy current work environment; • Low educational background, low socioeconomic status; • Job involves shift work or working 'unsociable hours'; • Minimal availability of selected duties and graduated return to work pathways, with unsatisfactory implementation of these; • Negative experience of workplace management of back pain (e.g. absence of a reporting system, discouragement to report, punitive response from supervisors and managers); • Absence of interest from employer.

Additional insight into the assessment of psychosocial flags and their impact has been developed by the IUA/ABI Rehabilitation Working Party. This Flags model is summarised in Table 11 and is used to predict and avoid disproportionate outcomes according to the IUA/ABI Model (The IUA/ABI Rehabilitation Working Party, 2004).

Table 11: Indicators of poor outcomes or delayed recovery—the flags model (The IUA/ABI Rehabilitation Working Party, 2004, p. 26).

Red Flags **(clinical factors)**	Serious pathology/diagnosis
	Co-morbidity (i.e. co-existence of other diseases)
	Failure of treatment
Yellow flags **(psychosocial risk factors)**	Beliefs about pain & injury (e.g. that there is a major underlying illness/disease, that avoidance of activity will help recovery, that there is a need for passive physical treatments rather than active self-management)
	Psychological distress (e.g. depression, anger, bereavement, frustration)
	Unhelpful coping strategies (e.g. fear of pain and aggravation, catastrophising, illness behaviour, overreaction to medical problems)
	Perceived inconsistencies and ambiguities in information about the injury and its implications
	Failure to answer patients' and families' worries about the nature of the injury and its implications
Blue flags **(perceived features of work or the social environment)**	High demand/low control
	Unsupportive management style
	Poor social support from colleagues
	Perceived time pressure
	Lack of job satisfaction
	Work is physically uncomfortable
Black flags **(not matters of perception – affect all workers equally)**	Employer's rehabilitation policy deters gradual reintegration or mobility
	Threats to financial security
	Litigation/disputation over liability or contribution
	Qualification criteria for compensation (e.g. where inactivity is a qualification criterion)
	Financial incentives
	Lack of contact with the workplace
	Duration of sickness absence
	Poor co-ordination between employers and those responsible for medical care

In a further review of the flag model Shaw *et al*., (2009) conducted a 3 day workshop with 21 leading researchers known as the "Decade of the Flags Working Group". The aim of the review was to collect the scientific evidence concerning clinical, occupational and policy factors in lower back disability and the development of feasible assessment and intervention strategies (Shaw et al., 2009). The Working Group identified seven workplace variables as being of significance to disability and duration of disability. These factors include - physical job demands; ability to modify work; job stress; workplace social support or dysfunction; job satisfaction; expectation for resuming work and fear of re-injury.

While the flags system has been helpful to translate a large body of epidemiological evidence into a single assessment method, questions still remain about the most reliable and effective means of assessing prognostic factors, how to use this information in clinical decision making, whether it improves patient outcomes, and how to disseminate this approach for widespread use (Shaw et al., 2009). Shaw *et al.* (2009) therefore indicates that the flag model/s needs further review and development to enhance the effectiveness and use of the Model.

3.7 Identification of individual, organisation and psychosocial factors contributing employee withdrawal

Withdrawal of employees from their employment or job avoidance is both relevant and of significant concern to workers' compensation systems (Hom & Kinick (2001). If employees are dissatisfied with their employment, workplace, colleagues and their work prior to sustaining an injury, the injury itself may be a catalyst to job avoidance and withdrawal from their employment (Hom & Kinicki, 2001).

Hom and Kinicki (2001) reviewed the incidents of employees performing withdrawal acts in the workplace, such as reducing work output and productivity, not effectively participating in group activities, presenteeism or absenteeism. Employees

may not quit from the organisation because of their dissatisfaction but rather use these acts of withdrawal (as noted above) help them adjust to their job frustrations.

Withdrawing employees may express their dissatisfaction through actions such as being late or absent, causing supervisors and management to punish employees for these behaviours in turn exacerbating hostilities and pushing the employee further along the withdrawal path (Hom & Kinicki, 2001).

Workers compensation claims and LDCs can be argued to be a form of withdrawal behaviour for those employees who are dissatisfied with their employment circumstances following and injury or illness in the workplace.

It is logical to anticipate therefore, that the factors that prevent employees from returning to work after an injury or incident do not simply arise when the injury or ill-health occurs. Rather, factors such as individual, organisational and psychosocial factors that may contribute to the incapacity or disability existed prior to the onset of the injury/ill health.

The Workers' Compensation system itself can be seen as a further forms of withdrawal and as such a means of allowing the worker to withdraw further from employment.

With prevention and good management of employee relations both pre and post incident this can be reduced and/or eliminated. The individual, organisational and psychosocial flags research and models to date have looked to limit the effects of the injury or disability after the injury has occurred.

The flags model uses a variety of methods to screen employees post injury that normally include interviews, questionnaires, educational sessions and targeted treatment reviews to prevent and reduce ongoing disability.

This research looked to utilise the information and wealth of knowledge obtained from this body of evidence relating to individual, organisational and psychosocial modelling and go further to develop a model to prevent disability prior to the incident or injury occurring. Given that the majority of the flags deal with factors that can be investigated, managed and prevented prior to the injury or ill health occurring, this was viewed as both a pertinent and realistic goal.

This research used the Flag Model and expanded on the already established principles to show examples of signs or symptoms warning employers of potential problems with employees in the workplace, who would be at risk of becoming an LDC in the event of an illness or injury. Table 12 provides comment on the pre-incident intervention and the business systems that once implemented will help detect and identify problems with employees.

Table 12: Flag Model expanded to consider Pre-Injury Incident Intervention.

Flag	Basis of Flag	Pre-Injury Intervention	Business Management Systems to Identify and Address Problem
Orange Flags	Suspicion of psychosis, suicidal tendencies or addictive behaviours such as alcoholism.	It would be highly likely that an employee experiencing psychosis, suicidal tendencies or alcoholism would exhibit the following behaviours at work: • Absenteeism; • Poor performance; and • Poor social interaction with supervisor and colleagues. • Other signs and symptoms in the workplace indicative of	1. Pre and In-employment Medicals and Health Monitoring and Surveillance Screening to determine fitness for work; 2. Performance Management Policy and Procedures; and 3. Once engaged ongoing Fitness for Work Policy and Procedures.

		poor mental health and/ or substance abuse Consequently prior to a work place injury, management should identify the above and manage the employee accordingly.	
Yellow	Yellow flags are sometimes broken down into (ABCDEFW): **A**ttitudes **B**ehaviours **C**ompensations **D**iagnosis **E**motions **F**amily, and **W**ork.	Prior to injury, management should identify employees experiencing problems. Employees who as a result of their attitudes, beliefs, emotions and conflicting family and work balance would exhibit the following: Absenteeism or problems with time management; Health issues; Poor performance; Conflict with management/supervisor ; Conflict with team members; and Dissatisfaction with job and work environment	1. Absenteeism Management Policy and procedure; 2. Performance Management Policy and procedures; 3. Fitness for Work Policy and Procedures; 4. Health Monitoring and Surveillance Screening; and 5. Climate Surveys. 6. Employee Assistance Programme
Blue Flags	Perceptions of the situation by employee or employer. Example an employee feels that their manager is not supportive, but the manager may feel they are supportive, or there may be a company policy that requires a person to be 100% fit prior to returning	Prior to injury, management should identify employees experiencing the following: • Conflict with manager or supervisor; • Conflict with team; • Employee exhibiting dissatisfaction with business procedures; • Employee exhibiting dissatisfaction with position or company; and	1. Health Management Policy and procedures to include injury management and return to work coordination (both work related and non work related); 2. Absenteeism Management Policy and procedure; 3. Performance Management Policy and reviews; and

	to work	• Employee seeking to modify or change company policy or procedures.	4. Climate Surveys. 5. Inclusion into new employee orientation an organisations information regarding injury management policy and procedures as relevant to the employee.
Black Flags	Social or cultural factors that can be an obstacle to recovery and return to work. Example a state welfare system where people may be better off staying on benefits rather than returning to work – there is a disincentive to finding a new job.	Prior to injury, management should be aware of the following: • Employees perception on team work and how role/team interact; and • Employee personality type and psychological profile.	1. Pre-employment employment testing on suitability to role and risk profile; 2. Climate Surveys; and 3. Performance Management Policy and reviews.

3.8 The Effects of Motivation

Motivation is a powerful catalyst to individuals. A person's motivation, or lack thereof, can be the cause or downfall of the individual and their performance. The following provides discussion on aspects of motivation and how motivation is impacted upon when an individual is ill or injured within the workplace.

Steven Hawkins is so profoundly handicapped by Motor Neurone Disease that he cannot move, talk, or breathe on his own, yet he communicates by use of code and continues to write books about the cosmos. In 2006 a New Zealand man, Mark Inglis climbed Mount Everest in spite of having lost both legs below the knee to frostbite in a previous climbing accident in 1982 (Christian, 2008). There are many other examples of people with significant disability who are able to successfully carry out employment in spite of an illness or disability.

People can have devastating health problems but nonetheless overcome the obstacles that their infirmities create. They remain fully engaged and productive in society. Medical conditions themselves – the anatomical or physiological loss of some functional capacity– do not automatically create disability (Christian, 2008).

In comparison to the aforementioned examples of people overcoming their infirmities, there are examples of people who suffer extremely minor sprain of their arm, wrist, ankle, etc. and due to this minor strain do not return to work and become significantly disabled. The question then is, 'Why are some people able to overcome significant infirmities and others are not able to overcome minor sprains?'

The causes for this are multi-factorial in nature and the factors that impact an individuals' motivation and behaviour need to be explored and understood to gain a better understanding of why some individuals are able to overcome infirmities and others with far less infirmities are not. This issue is of significant relevance to this research and more importantly the development of LDCs in that claimants with significant injuries can overcome these with minimal disruption to their work and family life, yet others with minor injuries have significant disruption to work and are unable to recover.

3.8.1 Theory of Motivation

Some of the earlier works in this field was undertaken in the 1940's by Abraham Maslow, a behavioural scientist who developed a theory about the rank and satisfaction of various human needs and how people pursue these needs (Gawel, 1997). Theory on motivation continued to be explored and quantified by Maslow's contemporary Herzberg (1959) and by McGregor (1960), McClelland (1961) and Alderfer (1972). Whilst these theories differed in approach to individual motivation and factors that contributed to motivation, all focused on establishing the basis of motivation in individuals and how they relate to the workplace.

3.8.2 Maslow's Hierarchy of Needs Theory

Maslow (1943) is regarded as a leading theorist of motivation and provided a fundamental insight into the thoughts of organisation behaviour and employee motivation. Maslow believed that human needs are arranged on five basic levels of importance commonly known as the 'Hierarchy of Needs'.

The basis of Maslow's theory is that every individual needs to satisfy elementary requirements such as the 'Physiological' needs in order to sustain life. In essence this means the fundamental requirements of human survival e.g. food, water, shelter, followed by movement towards health and education. Until this level was achieved the individual could not progress to the next level (Maslow, 1943).

Security and safety was the next level, which encompassed living without fear and to be stable. For an individual to meet this level they would require a stable job, a place to live, and mechanisms for defence against harm, both physical and emotional (Maslow, 1943).

Social needs are the third level. This includes a sense of belonging, for example, belonging to a family, or essentially belonging to an establishment where they are accepted as part of a group and therefore satisfying their affection, acceptance and friendship needs (Maslow, 1943). Maslow (1943) recognised that individuals required the 'lower level' needs to be fulfilled, prior to being able to engage in social acceptance.

Esteem, is the next level. This is where an individual desires to be held in high regard, within their social group and by themselves. This level is divided into two subdivisions, internal and external factors. The satisfaction of internal factors would include self-respect, achievement and autonomy whereas external factors would include status, community attention and recognition. These entire factors, within the

subdivisions contribute the overall satisfaction of power, prestige and self-confidence (Maslow, 1943).

The highest need of Maslow's hierarchy is 'self-actualisation'. This is the need for self-fulfilment, self-potential and growth i.e. to accomplish something. In simpler terms, it is often thought that it is giving something back to society that is recognised by all.

In 1954, Maslow published "Motivation and Personality" which introduced his theory about how people satisfy various personal needs in the context of work. In this publication Maslow postulated, that there is a general pattern of needs, recognition and satisfaction that people follow similar behavioural patterns (Gawel, 1997). In an organisational setting, an individual advances up the organisation, when the employer supplies, or provides, opportunities to satisfy higher needs on Maslow's pyramid.

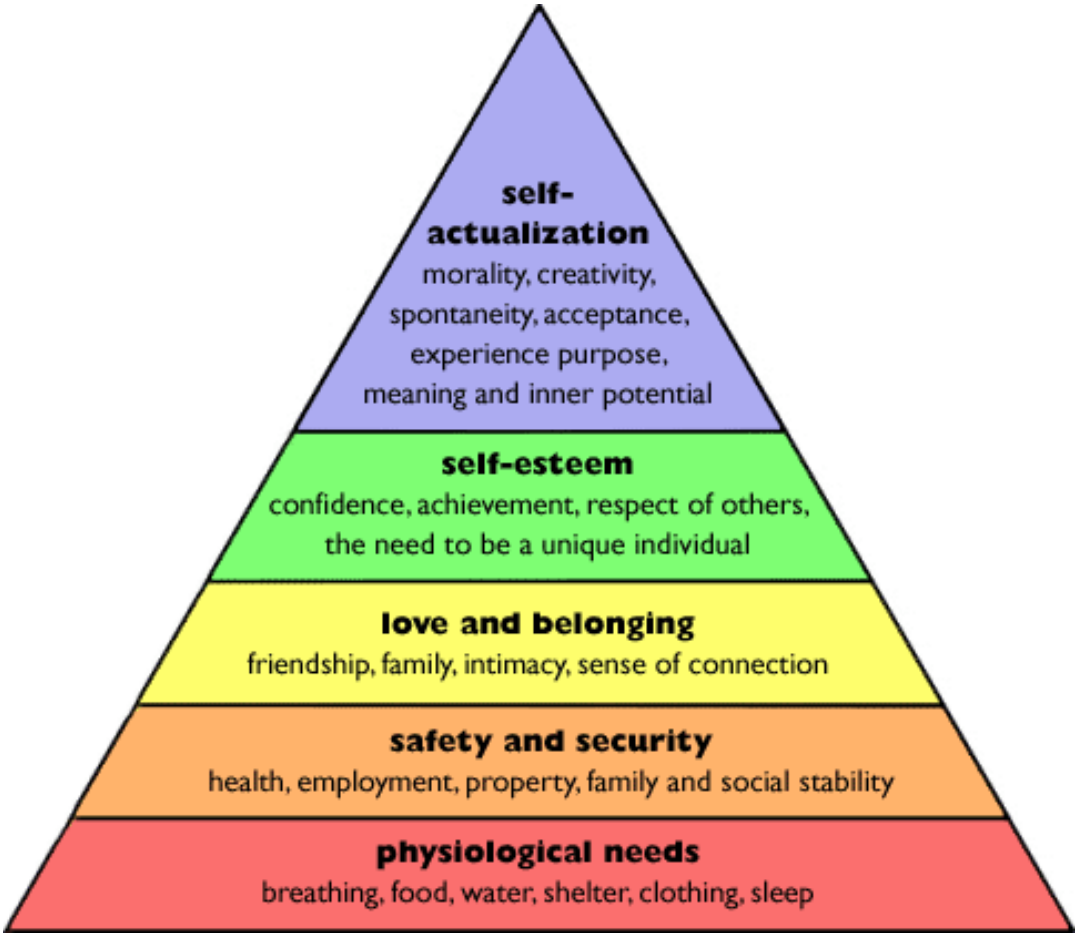


Figure 14: Maslow's Hierarchy of Needs (Gianni, 2012, p. 1).

3.8.3 Herzberg's Two Factor Theory

Psychologist Frederick Herzberg, proposed a theory about job factors that motivate employees. Herzberg (1959) constructed a two-dimensional paradigm of factors (Two Factor Theory) affecting people's attitudes about work. He concluded that such factors as company policy, supervision, interpersonal relations, working conditions and salary are hygiene factors rather than motivators. According to the theory, the absence of hygiene factors can create job dissatisfaction, but their presence does not motivate or create satisfaction (Gawel, 1997).

Hertzberg (1959) determined from research that the motivators were elements that enriched a person's job. In particular he found five strong determiners of job satisfaction, these being achievement; recognition; the work itself; responsibility and advancement (Gawel, 1997).

These motivators or satisfiers were associated with long-term positive effects in job performance while hygiene factors (dis-satisfiers) consistently produced only short term changes in job attitudes and performance, and reverted back after short periods of time (Gawel, 1997). Satisfiers relate to what a person does while dis-satisfiers relate to the personal relationships or environment in which the employee works.

Whilst the theories explored have evolved over time with greater input and knowledge, there are some factors that need to be considered when trying to understand individual's motivation.

According to Bellott and Tutor (1990) a problem with Hertzberg's work on Motivation was that it occurred in 1959, too long ago to be pertinent to more modern society and many workplaces (Gawel, 1997). This was highlighted in a study that included 30,000 participants. The results indicate that level I participants who would be associated with lower level needs are as influenced by motivational factors as by hygiene factors, contrary to Hetzberg's position that hygiene factors do not motivate.

They survey asked teachers "To what extent did salary influence your decision to participate in the program?" Teachers responded using a scale from 1 (little influence on deciding to participate in the program) to 7 (large influence). Results of the four highest-average items indicated that teachers perceived greater salary increases to be tied to higher levels of achievement and other motivational factors (Gawel, 1997).

Theories of motivation play a significant role in this research as it is thought that through pre and post-employment testing employers can gain a better understanding of an employee's motivators and how this may relate to their work behaviours. This information can help to determine if an employee is suitable for their potential or current position and if they will work well within the team environment that they are, or will be operating in. Additionally this information can assist with training and ongoing personnel development and ensure that an employees' long term career and personnel development is congruent with the organisational aims and objectives.

Findings of this literature review indicate that where an employee's personal development and long term career development are incongruent with the organisation all efforts should be initiated to assist the employee to locate an alternative role within the same organisation or if necessary with an external organisation. This proactive management will provide containment of negative consequences in the event that the employee becomes ill or injured and lacks the necessary motivation and/or development to sufficiently recover and return to their pre-injury position. This is turn preventing the likelihood of an LDC occurring, prior to an illness of injury arising.

3.8.4 The Impact of Culture and Cultural Issues

Extensive research has attempted to discover the basis of motivation in the workplace with no specific conclusion formulated (Flin, Mearns, O'Connor, & Bryden, 2000; Graham & Bennett, 1998; Loosemore & Lee, 2002). Research implies that generally employee motivation is difficult to achieve because of the range of variables involved in the cultural and ethnic background of individuals (Baram & Schoebel, 2007).

Maslow's motivation theory, whilst being suitable for the American esteemed ideal; may not be suitable for the motivation of employees from more collectively oriented cultures. The hierarchy of needs can vary from culture to culture (Manning, 2010).

It has been established that individuals from different countries have different motivational drivers, as well as different values and ideals by Hofstede (1980) and by Trompenaars and Hampden-Turner (1998). Individuals are dynamic in the sense that, wherever they may undertake employment, the parenthesis of their ideals and social system are moulded as part of their characteristics, whether it be part of a community or individualistic (Manning, 2010).

The workforce in collectivist countries, tend to stress the interest and honour of the group rather than the individualistic ego and the self-actualisation needs of Maslow's Western ideal. In countries high on uncertainty avoidance (such as Greece and Japan) as compared with lower uncertainty avoidance (such as the United States), safety or security is likely to prevail in motivating employees rather than other needs (Hofstede & McCrae, 2004; Manning, 2010)

Employees from countries where there are higher levels of uncertainty avoidance tend to consider job security and lifetime employment more important than holding a very interesting or challenging job. Social needs tend to dominate the motivation of workers in countries such as Sweden, Norway, and Denmark. Therefore, the motivator choice of regarding life quality over stress which reduces the quality of life (Hofstede's femineity dimension) and is therefore over productivity (Hofstede's masculinity dimension) (Hofstede & McCrae, 2004; Manning, 2010) is made.

Manning (2010) has noted that Herzberg (1987) made a strong claim for a broad applicability of his theory following studies carried out in Finland, Hungary, Italy, Israel, Japan and Zambia. Studies carried out in South Africa on the other hand produced different results, with Herzberg claiming that the impoverished nature of the unskilled worker's jobs had not afforded these workers with motivators.

In developing Asian countries, where the primary focus is on physiological and security needs, worker's may be satisfied to accept physiological and safety needs in their entirety or progress to a higher level but may not wish to reach self-actualisation (or indeed may not have the privilege or opportunity to do so) (Manning, 2010).

It can be conceived that there are those that having reached a higher level, due to circumstances within or without their control (such as redundancy) have regressed to a lower level and can find no motivation in trying to exceed this level for fear that the same situation would happen again (Manning, 2010).

Therefore individual's motivation and behaviour is influenced by a combination of the individual's experiences, perception, culture and values.

As a summary, based on the findings of this literature review, the key to managing individuals in the workforce is a combination of the following:

- Understanding each individual's experiences, perception, culture and values;
- Determining collectively that all employees perception, culture and values are compatible in the workforce;
- Managing employees as individuals being mindful of their individual experiences, perception, culture and values and ensuring that this is done so in a manner that respects anti - discrimination and equal opportunity legislative requirements.

Organisations can benefit from an understanding of the above principals and implement initiatives to prevent or limit cultural issues from impacting on team dynamics, in an effort to create a collectively happy, healthy and productive workforce. It can then be argued in turn, that this workforce is less likely to experience work related illness, injury and/or long-duration claims.

3.9 The effect of Organisational, Individual and Psychosocial Factors on workplace Injury or Disability?

To this point the literature review has gained an understanding of the costs and prevalence of LDCs and psychosocial modelling. The review now seeks to explore and provide clarity on individual, organisational and psychosocial factors and how they affect injury and/or disability.

Specifically the literature review looked to gain further clarification on:

i. An individual's perception of their pain and injury and actual coping strategies;

ii. An individual's perception and beliefs about the organisation or job; and

iii. Organisational factors such as the work and management of the organisation and the affect these factors have on disability in the work place and more specifically long-duration claims?

3.9.1 National Research and Studies

To establish what extent individual, organisations and psychosocial factors have on disability and duration of disability in the workplace a national review of the research literature pertaining to this topic was conducted.

Cotton (2009) surveyed 155 participants to establish factors that influenced organisational wellness; employee wellness (including possible causes of distress); job satisfaction; causes for the lodgement of workers' compensation claims or injuries; causes for non-certified leave; and staff turnover. The results of this research are located on the following Table 13.

Table 13: Research Evidence on Job Satisfaction, Workers' compensation, Non-certified Sick Leave and Turnover Intentions (Cotton, 2009, p. slide 15).

Job Satisfaction		Workers' Compensation		Non-Certified Sick Leave		Turnover Intentions	
		Emotionality	55			Emotionality	40
		Individual Distress	28	**Organisational Climate**	**-19**	**Organisational Climate**	**-39**
Organisational Climate	**77**	Individual Morale	-28	Job Satisfaction	-16	Individual Morale	-34
Emotionality	-36	**Organisational Climate**	**-26**	Emotionality	11	Individual Distress	22
Positive Work Experiences	34	Sociability	13	Workplace Distress	11	Positive Work Experiences	-14
Negative Work Experiences	-23	Negative Work Experiences	12	Negative Work Experiences	11	Negative Work Experiences	13
Sociability	11	Emotion Focused Coping	12	Positive Work Experiences	-06	Sociability	09
		Positive Work Experiences	-11			Job Satisfaction	-06

To summarise the findings of this research, individuals reported that the factors that were seen as positive to job satisfaction were organisational climate (77 respondents) and positive work experiences (34 respondents).

Individuals reported that workers' compensation claims not being lodged were due to emotionality (55 Respondents), individual distress (28 respondents), sociability (13 Respondents) and negative work experiences (12 respondents).

Participants of the survey advised that factors that influenced taking non certified sick leave were due to emotionality (11 respondents), workplace distress (11 respondents) and negative work experiences (6 respondents).

Participants looking to leave their employment advised that reasons to leave their position or the organisation included emotionality (40 respondents), individual distress (22 respondents), negative work experiences (13 respondents) and sociability (9 Respondents). Cotton (2009) showed through his research that wellbeing was an important factor in workplace job satisfaction.

Seligman's (2011) theory on the definition of wellbeing was introduced with Seligman defining wellbeing using five elements, these being:

- Positive emotion;
- Engagement;
- Meaning;
- Accomplishment; and
- Positive relationships.

Seligman (2011) defines wellbeing as a construct, which has several measurable elements each contributing to well-being. Seligman (2011) explains that each of the elements in wellbeing must have three properties in order to count as an element. These are as follows:

1. It contributes to wellbeing.
2. Many people pursue it for its own sake, not merely to get any of the other elements.
3. It is defined and measured independently of the other elements (exclusively) (Seligman, 2011).

Research and articles by Cotton (2006; 2009; 2003) also advise and highlight the importance of individual and organisational health on organisational culture, employee turnover, presenteeism and absenteeism as well as workers' compensation performance.

Seligman (2011, p. 16) explains that positive emotion or “the pleasant life” is made up of happiness and life satisfaction. Engagement is described by the concept as if an individual is so engrossed in an activity that “life stopped” or “where you (are) completely absorbed by the task”? (Seligman, 2011, p. 16). Seligman described meaning as belonging to and serving what the individual feels is bigger than them self. Accomplishment is seen by Seligman as achievement, which is often pursued for its own sake, even when it brings no positive emotion, no meaning and nothing in the way of positive relationships (Seligman, 2011, p. 20).

Seligman describes positive relationships as other people and further by the statement that people are the best antidote to the downs of life and the single most reliable up. Seligman (2011) explains that no one element defines wellbeing and rather all elements contribute to it.

The strengths, virtue, kindness, social, intelligence, humour, courage, integrity and the like (24 items in total) are supports for engagement. According to Seligman (2011) “One will go into flow when your highest strengths are deployed to meet the highest challenges that come ones way. Deploying one’s highest strengths lead to more positive emotion, to more meaning, to more accomplishment and to better relationships” (Seligman, 2011, p. 24).

Seligman (2011) introduces a further concept of flourishing. Flourishing is defined as the spirit of wellbeing theory: to flourish, as an individual one must have the entire core features as outlined in Table 14 below:

Table 14 Core features for the concept of flourishing

Core Features	Additional Features
Positive Emotion	Self Esteem
Engagement	Optimism
Interest	Resilience
Meaning	Vitality
Purpose	Self-determination and positive relationships

Wellbeing in the workplace can also have an impact on workers' compensation costs. Cotton (2008) in a study of various organisations looked at organisational influences on workers' compensation costs. The results of this study highlight organisation factors are a major contributing factor to the costs and duration of workers' compensation claims. This is represented in the following table:

Table 15: Organisational influences on workers compensation costs (Cotton, 2008, p. 1).

Correlations[1] between organisational climate factors and workers' compensation claims (results based on 151 individuals)		
Climate factor	**Workers' compensation claims**	
	Total weeks paid	Total cost
Teamwork	-0.26	-0.24
Organisational values and Code of Conduct are supported	-0.19	-0.18
Individual morale	-0.17	-0.17
Performance feedback	-0.16	-0.15
Demonstrating organisational values	-0.15	-0.14
Supportive leadership	-0.15	-0.15
Quality work outputs	-0.15	-0.15
[1]Whilst these specific correlations are not particularly strong, it should be noted that we do find correlations in the vicinity of .4 and above, depending on which injury categories or types of withdrawal behaviours are being examined, as well as other characteristics of the organisational climate and operating environment.		

The University of Queensland (2009) conducted research on reports of ill-health and injury caused from bullying and harassment in the workplace. A risk profile was developed that looked at employee responses to the causes of psychological wellbeing. Both favourable and non-favourable outcomes were identified below.

Significant favourable outcomes were identified as job control; supervisor support; co-worker support; change participation; procedural justice and reward and recognition (The University of Queensland, 2009).

Significant unfavourable outcomes were identified as time pressures; cognitive demand; emotional demand; group task conflict; and group interpersonal conflict.

In their research, The University of Queensland conducted a review of the literature to establish known causes of stress in the workplace. A summary of the literature review on stressors is summarised in Table 16.

Table 16: Causes of Stress in the Workplace (The University of Queensland, 2009, p. slide 28).

Psychological Risk Factors	Theoretical Perspective
1. **Work demands** – time pressure, cognitive demands, emotional demands, hours of work, work schedule. 2. **Job Control** – autonomy. 3. **Social Support –** supervisor & colleagues 4. **Role Conflict** 5. **Poorly Managed Change**	Job Demand-Control Model Karasek & Theorell (1990) Katz & Kahn (1978) Mackay Cousins, Kelly, Lee & McCaig (2004).
6. **Recognition and Rewards** – money, esteem, status, opportunities.	Effort-Reward Imbalance Model Siegrist (1996, 1998)
7. **Organisational Injustice** – procedural or interactional.	Brotheridge (2003) Elovainio, Kivimaki & Vahtera (2002)
8. **Conflict and Harassment**	Jehn (1985) WHSQ (2004), Leymann

The University of Queensland (2009) summarised the implications of stressors in terms of employees and organisational outcomes, this is demonstrated in Figure 15.

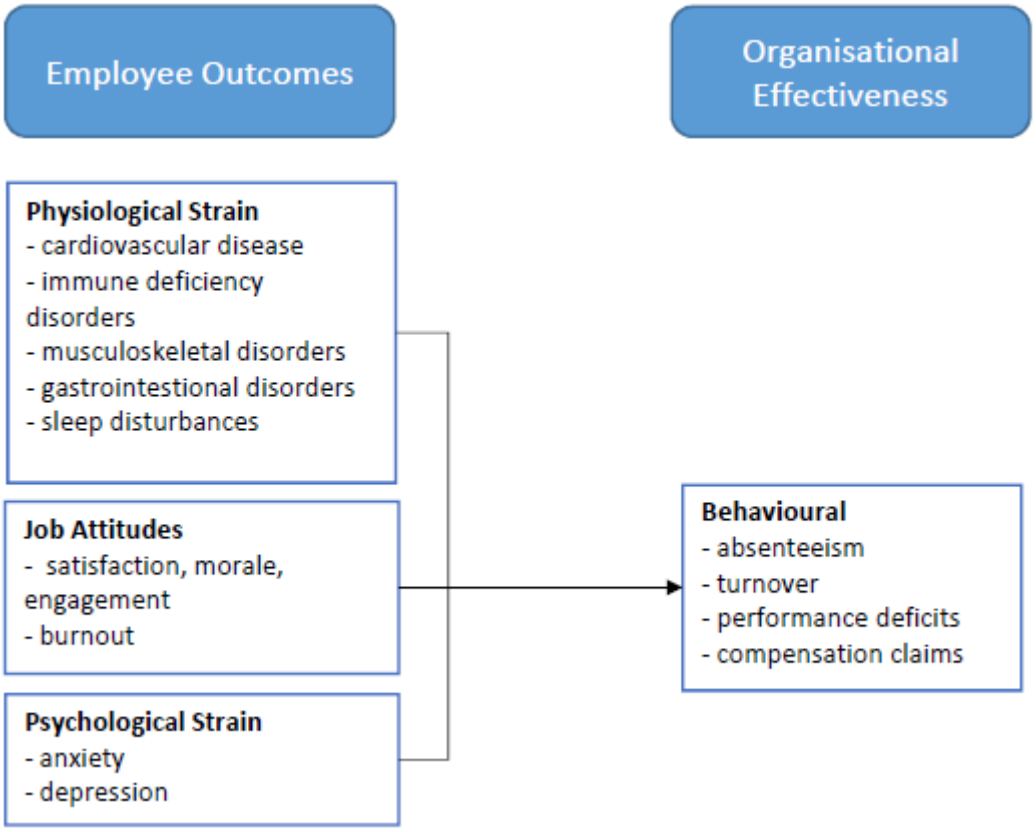


Figure 15: Implications of Workplace Stress on Employees and the Organisation (The University of Queensland, 2009, p. slide 31).

The above figure summarises how workplace stress can affect the individual, causing ill health and injury, affecting their performance at work and ultimately leading to the potential for the individual to withdraw from the work setting. These behaviours may include, for example, taking (sick) leave, resigning from the organisation or lodging a workers' compensation claim.

WorkCover South Australia conducted research in 2010 on assessing the role of workplace culture in fostering return to work culture. This research was conducted on three manufacturing sectors of variable risk classifications (low, medium, and high). The findings of this research show trust and communication between management and the workforce is not rated as highly as the commitment to report injury. Results also indicate that supportive workplace practices are a key to return to work culture (The Australian Institute for Social Research, 2010).

Whilst the aforementioned Australian Studies were conducted in schemes other than the Western Australian workers' compensation system, the findings and comments are of significance to this research given the many similarities between all Australian State and Territory schemes. All studies highlight the importance of individual, organisational and psychosocial factors to the onset of long term injury and disability.

3.9.2 International Research and Studies

A review of international research conducted on organisational, individual and psychosocial factors was conducted to determine the impact on disability and duration of disability.

Saunders in his article 'Risk Factors for Chronic, Disabling Low-Back Pain' indicates factors that attribute to the development of low-back pain are depression and poor coping skills; job dissatisfaction and blue collar /heavy physical work; age; severe psychological stress and abuse; substance abuse; and compensation and unemployment issues (Sanders, 2000).

Main and Williams in their research confirm the view of Sanders (2000), in so far as commenting:

"Research has shown that there are many different reasons for patients to consult their doctor with pain – seeking cure or symptomatic relief, diagnostic clarification, reassurance, "Legitimisation" of symptoms, or medical certification for work absence or to express distress, frustration, or anger. Doctors need to clarify which of these reasons apply to an individual and to respond appropriately" (Main & de C Williams, 2002, p. 534).

Bongers *et al*. (1993) reviewed 46 published articles between 1973 and 1992 dealing with psychosocial factors at work as risk factors for low back pain and neck pain.

The authors concluded that even though the overall picture was unclear an association had been shown between lower back pain and several psychosocial job variables but that many of the studies suffered from methodological shortcomings (Bongers et al., 1993; Webster & Snook, 1990). Bongers (1993) findings concluded that monotonous work; high perceived work load levels; time pressure; low control on the job; and lack of social support are all affiliated with musculoskeletal diseases and symptoms (Bongers et al., 1993).

National Institute of Occupational Safety and Health (NIOSH) (Center for Disease Control, 1986), in the report 'Leading Work-Related Diseases and Injuries', advised that unsatisfactory work environment might contribute to psychological disorders. NIOSH define unsatisfactory work environment to include work overload; lack of control over one's work; non-supportive supervisors and co-workers; limited job opportunities; role ambiguity or conflict; rotating shift work; and machine-paced work (Center for Disease Control, 1986).

In their study Li *et al*, (2001) workers were interviewed regarding various potential determinates of occupational injury. Demographic characteristics (age, sex, marital status and education); work history and conditions (year of employment, shift work, workload); lifestyle (smoker, alcohol consumption, exercise, leisure time and activities, hours of sleep); & health status (perceived health and number of chronic conditions suffered) were factors seen to contribute to injury in the workplace (Li et al., 2001).

The association between stressor frequency, stress reaction and job dissatisfaction with occupational non-fatal injury were researched in this study. Results suggested a stronger linear association of non-fatal injury with severity of stressor rather than with frequency of stressor. Despite prior studies considering that work stress and job dissatisfaction were inter-correlated findings indicated that job dissatisfaction alone showed no significant association with the frequency of non-fatal injury Li *et al.* (2001).

Analysis of studies into work-related stress and industrial relations in Portugal revealed 47% of organisations indicated that the main risks in the workplace were not of a physical nature, but rather a psychosocial nature and that health problems in the workplace had a multi-faceted cause such as stress, fatigue, repetitive movement and other factors (Llorens & Ortiz de Villacian, 2001).

Studies (Mobley, Griffeth, Hand, & Meglino, 1979; Steers & Mowday, 1981) as cited Hom and Kinicki (2001, p. 976) have explored the relationship of how inter-role conflict, extra work and workplace values cause employee dissatisfaction and how this translates into exits or withdrawal from the workplace. Despite the growing reports of inter-role conflict and extra work commitments, many organisations do not consider the effects of this on exiting employees or conduct studies/exit interviews to gauge degree to which these factors have contributed to a worker leaving the organisation (Hom & Kinicki, 2001).

Low back pain continues to be a leading cause of suffering and work disability in the industrial world. Considerable controversy remains about the most appropriate forms of treatment. Most remarkably is the failure of anatomic and physiological information to provide a dependable physical basis for prognosis once any serious underlying pathology has been ruled out (Shaw et al., 2009). Instead epidemiological evidence suggests personal circumstances, pain beliefs and other non-medical factors are more important in the perpetuation of chronic pain and disability.

Do psychosocial factors at work cause low back pain (LBP) or affect behaviour of patients with existing LBP? These questions have been the subject of a large number of studies over the past 30 years and just as primary studies arrive at conflicting results, systematic literature review disagree in their conclusions (Hartvigsen, Lings, Leboeuf-Yde, & Bakketeig, 2004). Hartvigensen elaborates that Hoogendoorn *et al.* (2000) concluded that there was strong evidence for both low support in the workplace and low job satisfaction to be considered as risk factors for back pain following reviewing 11 cohort and case control studies. Following reviewing 66

papers published before 1999, Hartvigensen concluded that even the most optimistic interpreter of this body of results would be cautious in terms of inferring that psychosocial work characterises are contributing to the occurrence of LBP (Hartvigsen et al., 2004).

Hartvigensen *et al.* (2004) critically reviewed prospective cohort studies published between 1990 and 2002 to determine the level of evidence supporting the theory that exposure to poor psychosocial work environments influences the presence of low back pain and/or its subsequent consequences (filing injury claim, sick leave, delayed return to work, disability payments); and to estimate the strength of these associations.

The results of Hartvigensen *et al.* (2004) review found moderate evidence for no positive association between the perception of work, organisational aspects of work and social support at work and low back pain. Further insufficient evidence of a positive association between stress at work and low back pain was found. In discussing these results Hartvigensen *et al.* (2004) concluded that according to a study by Karasek (1982) people characterised by low control over their work and high conflicting work demands might be at higher risk for disease and less satisfied with their work.

Alternative models of psychosocial work characteristics and their effect on health are based on a concept of imbalance between the effort at work and the reward received. As such prestige or high salaries may cause some workers to better tolerate and accept unhealthy environments (Hartvigsen et al., 2004).

Non-medical factors, especially those related to workplace concerns, perception of injury severity, and expectations for recovery were associated with disability durations. These findings provide further evidence that psychosocial factors may contribute to the disabling effects of pain, even within the first weeks after pain onset (Shaw et al., 2005).

Pincus *et al*. (2002) and Shaw *et al*. (2005) found in a systematic review of psychological factors contributing to pain chronicity that the strongest predictors were mood, psychological distress and somatisation is predictors of disability. Shaw *et al*. (2005) concluded that workplace physical environment, workplace psychosocial environment, and pain beliefs were the predominant factors associated with disability outcomes in their investigation.

Psychosocial factors have long been recognised as important determinants of RTW outcomes, but Sullivan *et al.* (2005) argue that the focus has been too narrow leading to less effective interventions (Sullivan et al., 2005). Sullivan *et al*. (2005) perspective includes factors that are internal to the individual, as well as those that are external to the individual (i.e. job stress, workplace issues, health care provider's interactions). A critical area for future research is the nature of interactions among these factors and their impact on RTW (Burton et al., 2005; Sullivan et al., 2005).

Whilst various factors have been tested to modify individual factors, often based on a cognitive-behavioural approach, too little has been done to modify important external factors. Workplace stress, job flexibility, organisational development and communication, optimising job accommodation, and stakeholder expectations all seem to be critical for improved RTW outcomes, yet even the best current RTW research has not yet fully incorporated these issues (Burton et al., 2005).

Disability prevention strategies for reducing the functional consequence of back pain include a large diverse array of interventions including patient education and counselling, exercise, physiotherapy, workplace accommodation and support, spinal manipulation and case management. The means by which such disparate treatment provides similar results are not well understood (Shaw et al., 2009).

One possible explanation is that patients are heterogeneous with regard to their specific needs and expectations; thus only a minority of patients benefit from any one particular intervention approach. Methods to assist to identify this scenario would be to divide patients into sub-groups based on nature of the physical, psychological and/or organisational barriers to recovery (Shaw et al., 2009).

Shaw *et al.* (2009) comments that results have shown a trend for psychosocial variables (both individual and workplace) to be overall better prognostic indicators than either demographic or clinical findings however, methodological differences among studies have led to some discordant conclusions among reviewers. Clearly more work is necessary to sort out the unique and overlapping effects of various workplace and psychosocial variables on the risk of chronic pain and disability (Shaw et al., 2009).

Shaw *et al.* (2009) summarises in great detail the scope, methodology and conclusions from 5 major reviews of the literature pertaining to prognostic factors in back pain disability that have been conducted in recent years.

If all factors supported by at least one review are included, then the preliminary core set of workplace factors include the following seven variables. These are heavy physical demands; ability to modify work; job stress; social support; job satisfaction; RTW expectations; and fear of re-injury (Shaw et al., 2009, p. 68).

Shaw *et al.* (2009) summarises in Appendix 7 the range of screening methods currently available for assessing prognostic factors in back disability.

Shaw *et al*. (2009) concluded in their research that future research direction should include improving available assessment methods, adopting simpler and more uniform conceptual frameworks, and matching screening results to plausible interventions.

Durand *et al.* (2002) developed the Work Disability Diagnosis Interview (WODDI) in order to promote improved evidence-based practice in work disability management, specifically designed to help clinicians detect the most important disability factors present in subacute and chronic patients with work related musculoskeletal disorders.

Durand *et al.* (2002) current version of the WODDI includes 24 clues of a work handicap situation (CHWS) that are classified in the following domains socio-demographic, work related and bio-psychosocial. The CHWS clues are displayed below:

Table 17: 24 Clues of a Work Handicap Situation (Durand et al., 2002, p. 195).

Sociodemographic clues	S14. Presence of Waddel's nonorganics signs (21,34,45)
S1. Older age (23–34)	S15. Poor general health (33,42,46)
S2. Being single or divorced (27,35)	S16. Specific diagnosis (22,25,28,29,37)
S3. Having dependants (26,27)	S17. More severe injury (39,46)
Work-related clues	S18. Mechanism of injury—Accident type (falls and lifting) (26,44,47)
S4. Lowest and highest compensation wage (26–29,36–38)	S19. High pain intensity or constant pain (33,34,38,39,44,48)
S5. High job demand (31,39–42)	S20. Site of symptom—injury (24,30)
S6. Unsatisfied coworker cohesion or social isolation (23,39,41)	S21. Presence of radiating pain (21,25,31,34,41,42,47,49)
S7. Low expectation of RTW (39,43)	S22. Presence of neurological sign (21,25,47)
S8. Low job satisfaction (22,33)	S23. Long treatment lag or long period of absence from work (21,25,32,34,37,47)
S9. Light duty unavailable (23,28,31,42)	S24. History of musculoskeletal pain (21,31,39,43,44,50)
S10. Avoidance of coping (21,41,43)	
S11. High level of distress or stress (23,43)	
S12. Short job tenure (21,25,32)	
Biopsychosocial clues	
S13. Greater functional disability (21,23,34,38,40–42,44)	

Steenstra *et al*. (2005) conducted a study to assess the evidence on factors that predict duration of sick leave in workers in the beginning of a low back pain related sick leave episode. Based on the International Classification of Functioning, Disability and Health Streenstra *et al*. (2005) distinguished between factors related to the disease (low back pain), to the worker (worker's health, psychosocial factors) and to the environment (work, work organisation and work related psychology) that influence duration of an episode of sick leave. The results of Steenstra *et al.* (2005) research are outlined in Table 18.

Table 18: Factors that predict duration of sick leave in workers at the beginning of an episode of work related low back pain (Steenstra *et al.* 2005).

Factors related to back pain	
There is strong evidence for the influence of radiating pain in prognosis for duration of sick leave (p.852)	**Factors deemed as not prognostic factors include:** History of low back pain; pain intensity; physical examination. Steenstra *et al*. (2005)
Factors related to the worker and workers' health	
"Strong evidence exists for age as a prognostic factor for longer duration of sick leave. Specifically there was a significant negative effect of older age on duration of sick leave" (p. 853). "There is strong evidence for gender as a prognostic factor, specifically men are returning to work faster" (p.853). "General health was reported as an important prognostic factor for duration of sick leave" (p.854).	**Factors deemed as not prognostic factors include:** • Marital status; • Number of dependents; • Height and weight; • Smoking habits; • Physical fitness. Steenstra *et al*. (2005)
Factors related to the psychosocial factors in workers	
Social dysfunction and social isolation was deemed to be a prognostic factor for the duration of sick leave.	**Factors deemed as not prognostic factors are as follows:** • External locus of control; • Lack of energy; • Anxiety; • Effect of depression; Steenstra *et al*. (2005).
Factors related to the work	
There is strong evidence for heavy work as a prognostic factor, specifically men are returning to work faster.	**Factors deemed as not prognostic factors are as follows:** • Working shifts in excess of 8 hours; • Adopting awkward positions; • Job difficulty; • Vibration due to work tasks; • High work tempo. Steenstra *et al*. (2005).

Factors related to work organisation and psychosocial factors	
"There is moderate support for supervisor support and colleague support as a prognostic factor' (p.856).	**Factors deemed as not prognostic factors are as follows:** • Duration of employment; • Status of employment and tenure; • Job satisfaction; • Job demands, job control, job strain and work flexibility. Steenstra *et al.* (2005)
Organisational prognostic factors	
There is strong evidence for a negative effect of receipt of high compensation on duration of sick leave.	**Factors deemed as not prognostic factors are as follows:** • Occupation; • Size of industry or company; Steenstra *et al*. (2005)
Policy related prognostic factors	
"There is moderate evidence that preventative absenteeism policy does not shorten duration of sick leave and the quality of the process of care is a predictor for duration of sick leave" (p.857).	**Factors deemed as not prognostic factors are** Union membership. Streenstra *et al.* (2005)

The aforementioned studies and research was conducted on International organisations within International Schemes. These findings are of relevance as all of these studies highlight individual, organisational and psychosocial factors as contributing factors to the onset of ill-health and injury in the workplace.

When considering the relevance of these findings factors such as difference in the legislations of the schemes; culture and makeup of the organisation need to be considered for their effect on the onset of ill health and injury and long term disability.

All studies discussed above are positioned to consider post incident intervention in an attempt to minimise the impact of injury and subsequent disability. None of the studies analysed individual, organisational and psychosocial prognostic factors prior to the incident, injury or disease occurring in an attempt to identify and analyse the impact of the pre-incident variables that contribute to the cause of the injury, illness

or disease. Nor do these studies discuss or implement strategies to prevent illness, injury or long-duration claims from occurring.

A table summarising all of the articles review and their findings can be located in Appendix 7.

3.10 Introduction of a new Pre-Incident Flag

The work by the Task Forces has created a wealth of knowledge of individual, organisational and psychosocial factors that contribute to the injury or ill-health of a worker becoming long in duration, post injury. Screening methods such as the Obero Pain Scale (for yellow-flag screening) (Boersma & Linton, 2005) and the WODDI (for screening socio-demographic, work related and bio-psychosocial factors) (Durand et al., 2002) assist practitioners and allied health providers by identifying patients at risk of prolonged injury and disability.

Work conducted in this field has all concentrated on efforts to reduce the effects of injury and disability post incident. Highlighted previously was an extensive list of individual, organisational and psychosocial factors existing prior to injury and ill-health in the workplace. For this reason and to prevent work related injuries and ill-health becoming long in duration, efforts need to focus on pre-incident intervention.

From reviewing published literature, assessing and critiquing existing knowledge, lessons, good practices and identifying gaps in currently published information the development of a new pre-incident flag has been created to identify individuals and workplaces at risk of developing work related injury and disability.

The Flag Model has broader applicability to the entire population, not just work related injuries and ill-health. However, this introduction of a new flag is only work related at this stage and with further knowledge and research it is hoped that it may be applicable to the broader population.

The new flag is to be referred to as the ***Green Flag***. It is a combination of psychosocial (previously referred to as yellow flags), individual, referred to as (black flags) and organisational (blue flags). All factors identified, whilst may be contributing factors to further ill-health and injury post incident, are specifically identified due to the pre-incident contribution to the employee's perceptions, motivation and behaviour and prior to the incident and a cause to the injury or ill-health becoming 'Apparently Disproportionate Outcome' (ADO) as identified by IAB/UBI (2004).

Proposed Green Flag variables are tabled below and have been developed by the author based on a summary of the findings of published literature.

Table 19: Green Flags or Pre-incident Flags contributing to the onset of injury and illness and duration of incapacity.

An employee who is more likely to be an LDC, their role will include the following: • higher level of psychological and physical demand; • low skill discretion; • poor co-worker support; • high job demand; • low control and autonomy.
An employee who is more likely to be an LDC, will demonstrate the following characteristics: • history of mental health issues ; • union membership; • job dissatisfaction; • problematic relationship with co-workers and/or supervisor; • history of poor attendance or absenteeism; • individual has poor coping skills.
An organisation of an employee who is more likely to be an LDC, will demonstrate the following characteristics: • Contract of employment where the employee is engaged other than permanent; • Lack of Human Resource personnel; • Do not conduct pre-employment medicals; • Do not formally induct their employees or contractors; • Do not have job descriptions for their employees; • Organisation has a lack of supportive organisational culture

3.11 Causal factors to the onset of Workers' Compensation Claims and LDC outcomes

From the literature review it was also evident that different conditions that exist within the industry and economic climate can have a contributing factor to the onset of workers' compensation claims and more specifically LDC outcomes.

Recent economic growth in the areas of mining and oil and gas industries has seen severe shortages in skilled labourers. This has resulted in organisations engaging applicants who may not meet their organisational prerequisites or alternative not following internal processes such as induction and training in an urgent attempt to get people commencing employment as soon as possible.

Alternative methods to address this skill shortage that have been used in recent time when severe economic growth has occurred in Western Australia and nationally is to allow skilled migrant workers to work in Australia under relevant work visas. Migrant workers from diverse cultural and ethnic backgrounds create challenges to organisations as highlighted previously in 3.8 work related motivation and needs (Hofstede & McCrae, 2004; Manning, 2010).

Alternatively, in times of economic downturn a higher availability of skilled labourers where organisations can choose the best candidate for the position and there is more time and less urgency to have the new candidate productive and working in the field. Therefore allowing for all vital induction, HSE and relevant training that are required for the position.

Whilst this example of economic climate is one example, the decision not to follow internal business protocols or manning requirements may have a series of ongoing knock on effects that create disharmony in the organisation, the creation of sub-cultures, problems with processes, productivity, team cohesiveness and ultimately ill-health and injury.

From the literature review the following model of causal factors model has been created that depict the causes of workers' compensation claim and more specifically LDC outcomes, including individual, organisational and psychosocial factors. The causal factors model can be located Figure 30.

3.12 Model of Management for Effective Employee Management

In addition to the development of Casual Model of onset of workers' compensation claims and more specifically LDC claims, a proposed model of management has been developed based upon the findings of the literature review. This model looks at prevention from the primary, secondary and tertiary levels to ensure the effectiveness of the strategy and the prevention of the effects of harm caused by day-to-day work, fatigue, absenteeism and ultimately illness and injuries.

3.12.1 Hierarchy of Prevention

In safety management systems and more specifically hazard management, level of risk is identified and assessed. In order to implement suitable controls measures to reduce the likelihood and consequences of risk the concept of hierarchy of control is adopted. The hierarchy of control ranks the effectiveness of control according to the level of prevention of ongoing risk. The hierarchy of controls is outlined as follows:

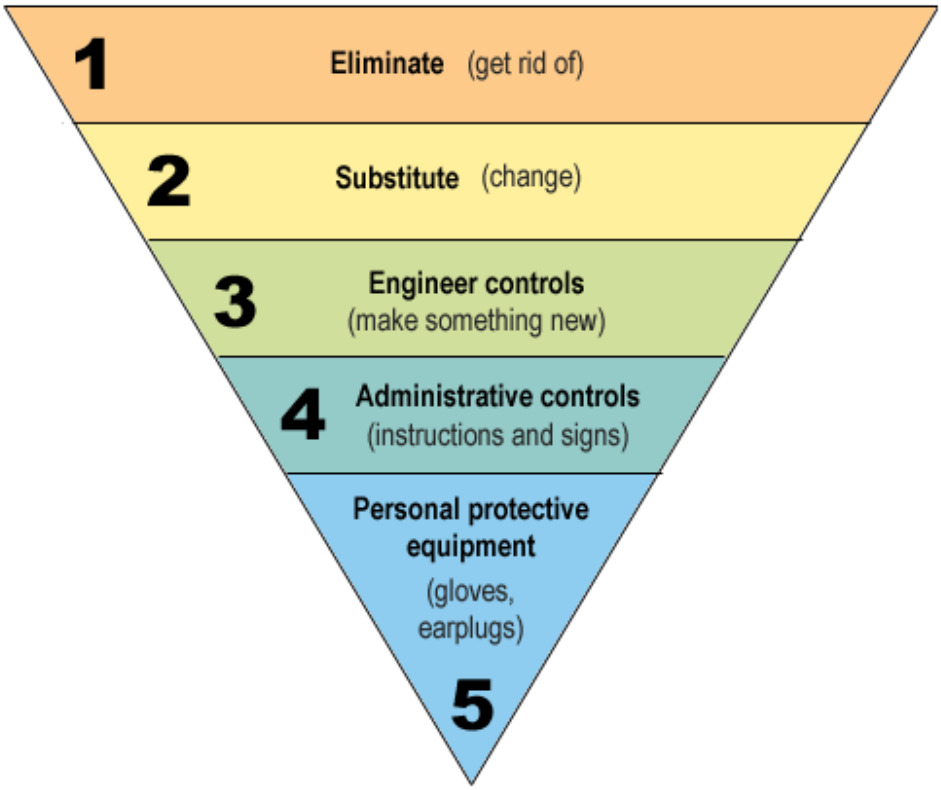


Figure 16: Safety Management Hierarchy of Control (WorkCover SA, 2002, p. 8)

If a risk is eliminated the likelihood of further risk or problem is also eliminated. However if an administrative control is implemented the risk is still present, if the administrative control is followed by all employees then the risk will be reduced by ensuring compliance to the agreed protocols. Problems result however in ensuring that employees adhere to the administrative controls (AS/NZ 4801).

The higher the level of prevention implemented for example at level 1, 2 or 3 the more effective the control or prevention of the risk as they do not rely on human remembering to do so (AS/NZ 4801).

A similar hierarchy of control as that used in managing safety risks can be used in to determine preventative interventions for the management of workplace health and wellbeing (including the prevention of long-duration workers' compensation claims). This hierarchy can be classified in 3 categories:

Table 20: Levels and Methods of Intervention (The University of Queensland, 2009)

Interventions (adapted from: LaMontagne, Shaw, Ostry, Louie & Keegal (2006)				
Intervention Level	**Effect Rating**	**Targets**	**Examples**	**Historical Tradition**
1. Primary (Preventative) Reducing the nature of the stressor before employees experience stress-related symptoms.	+++	• Stressors at their source. • Organisation of work. • Working conditions.	• Job re-design. • Workload reduction. • Improved communication.	• OHS • Organisational Psychology
2. Secondary (Ameliorative) To help equip employees with resources to cope with stressful conditions.	++	• Employee responses to stressors.	• Cognitive behavioural therapy. • Coping classes. • Anger management.	• OHS • Clinical Psychology
3. Tertiary (Reactive) To treat, compensate, and rehabilitate employees with enduring stress-related symptoms	+	• Enduring adverse health effects of stressors.	• Return-to-work programs. • Occupational therapy. • Medical therapy.	• Medical • Clinical

Whilst the aforementioned table relates to interventions stages for psychological or stress claims the steps apply to methods of intervention and the examples highlighted are of relevance to preventative management of ill-health and injury in the workforce.

Similar to the hierarchy of control for safety risk management the higher the level of intervention and more effective the control leading to a reduction in the risk. For prevention to be effective organisations should invest heavily in the initial phase to

ensure the most effective elimination of the risk and to bring about the cultural change required to make the initiatives effective.

3.12.2 Implementation of Health into Health and Safety Management Systems

Traditional health and safety focuses on the prevention of workers' compensation claims by enhancing the organisations health and safety practices and performance (Australian/New Zealand Standard, 2001, 2004). However most of literature previously discussed indicates that injuries do not always result from accidents or traumatic events but rather everyday exposures in the workplace with a gradual injury onset (Cotton, 2006; Cotton, 2009; Cotton & Hart, 2003; Kendall et al., 2002; Schultz et al., 2002; Shaw et al., 2009; The IUA/ABI Rehabilitation Working Party, 2004; Work Performance UK, 2009).

Organisations spend considerable resources, time and effort on the prevention of accidents and ill health in the workplace by analysing traumatic events and hazard report forms (Australian/New Zealand Standard, 2001). They often fail however to see the significance of the effect that every day work, including working with others, organisational structure and the job itself have on the individual's physical and psychological health.

Research and review has discussed how small minor incidents or ill-health has resulted in significant or catastrophic compensation claims (Bernacki et al., 2007; The IUA/ABI Rehabilitation Working Party, 2004). The cause of the injury or ill-health may not result from an actual incident, but rather the culmination of events that had les up to what eventuates in injury or ill-health.

Organisations place great emphasis on the **S** in **H**ealth and **S**afety, but fail to recognise or understand the **H** (Cameron, 2010).

It is common for organisations to have a system in place to monitor/evaluate the Health of employees prior to the individual commencing employment in their workplace, through the process of a pre-employment medical assessment (Pachman, 2009). This is often however the only means of evaluating the health of an employee that the organisation utilises.

Managing the health of employees is often complex and a legislative minefield. Currently in Western Australia employers must have a thorough understanding of several pieces of legislation to navigate and manage employee ill-health and fitness for work issues. These legislations include:

- Disability Discrimination Act 1992(Commonwealth)
- Equal Opportunity Act 1995 (WA)
- Privacy Act 1998 (Commonwealth)
- Occupation Health and Safety Act 1984 (WA)
- Minimum Conditions of Employment Act 1993 (WA)
- Workplace Relations Act 1996 (Commonwealth)
- Industrial Relations Act 1996 (WA)
- Worker's Compensation and Injury Management Act 1981 (WA).

People managing this process are overwhelmed by the extensive amount of legislation and the conflicting nature of the various requirements imposed by the legislation (Saracini, 2001). Often employers make the following comments about managing the ill-health of employees:

- "*I know my employee is not healthy but I do not know how to manage the process?*
- *What is the process?*
- *What can I do? What can I not do*?"
- *"If employee is deemed not fit for work they do not get paid and I do not*

want to place them in this situation"

- "*If I tell someone they are not fit for their job, then I will have to defend the matter in the unfair dismissal tribunal*"
- *"It is hard to manage psychological health as you cannot see it like a broken bone or cut finger."* (Saracini, 2001, p.2)

It is very difficult (arguably impossible) to always understand or anticipate a person's perception of a situations and the effect a situation may have on their emotions and/or psychological state. Individual differences between people require individual management strategies to ensure that each employee is managed to achieve the best health and workplace outcome (Jansz & Mills, 2008).

This highlights the need to not only manage overall Health and Safety collectively – the current standard practice - but to consider the process for each individual. To ensure effectiveness of this approach an organisation needs to have a better understanding of how and why employees react to certain events or situations, how they best interrelate with their team and supervisors, how the team best learn and what drivers are most important within the team to ensure they function safely and productively (Jansz & Mills, 2008).

Currently safety awareness and education topics have extended to include the following:

- Family work balance
- Effect of working long hours)
- Bullying in the workplace
- Violence and aggression in the workplace
- Slips, Trips and Falls
- Stress Management
- Working Alone

- Working at Heights
- Manual handling (Western Australian Government Department of Commerce, 2014).

Currently health and safety documents and organisational manuals lack detail and do not specifically address practices and procedures for ensuring health and wellbeing of individuals (Cameron, 2010). These documents provide detail on addressing physical risks and hazards but are silent on how to address psychological or physiological hazards that may be caused from everyday working life and situations.

Organisations look for support in the development of their Health and Safety documents and manuals in the form of industry Audit Tools such as the AS/NZ 4801: 2001 and ISO 9001 (ACS Registrars, 2010, Gallagher, Underhill & Rimmer, 2003). Whilst these documents may mention the importance of injury management; injury prevention and rehabilitation they provide no guidance or specific instruction to companies on how to manage this complex function and process. Likewise such audit tools also are silent and lack detail on managing and dealing with the physiological, psychological and psychosocial factors that contribute to and cause ill-health and illness in the workplace.

Cameron (2010) introduces the need for organisations to develop a health ownership model for organisations and employees to take not only joint responsibility but joint action. Cameron (2010) defines health ownership as the process that empowers an organisation and the individuals within it to "own" workplace health through:

- Understanding and being responsible for both workplace and individual health needs;
- Controlling workplace health risks;
- Contributing to health improvements and change management programs; and

- Changing attitudes and behaviour towards the workplace health management process.

(Cameron, 2010)

The health ownership model can be associated with the 'yin and yang' philosophy (Cameron, 2010 p. 61), i.e. one part of the whole is reliant on the other parts to exist. It can be said that without a healthy workforce, the workplace itself cannot exist or function effectively. It is the principle of balance and counterbalance, which can be applied to the concept of Health Ownership in the workplace.

Health ownership works "through the implementation of health management in everyday procedures, policies and practices, just as we have done with safety management, a safety and health policy, with accompanying procedures is only 50% effective if employees are only adhering to the safety aspects of the policy" (Cameron, 2010, p. 69).

In order for health policies to be effective, employers need to enforce their health policies and implement all aspects of the policy, not just the safety requirements that so often override the health needs. Health ownership together with safety, aids both the employer and employee. "Increasing health awareness and integrating the Health Ownership process to everyday workplace management, results in increased productivity, job satisfaction and healthier and safer workers" (Cameron, 2010, p.70).

3.12.3 Requirement for Injury Management Systems and Return to Work Coordinator

Organisations should ensure that they have clearly defined injury management systems to ensure that in the event of an injury, employees are dealt with in a timely manner using a clear process that is understood by all within the organisation.

Employer engagement in and commitment to injury management programs has the potential to result in benefits that extend their impact further than the injured employee alone. To realise broader potential benefits however it is important that employers do not perceive the minimum statutory standards to be the sum of their engagement in injury management. Employers maintain significant investments in their business and can optimise the impact of success on injury management programs whilst simultaneously minimising direct and indirect costs associated with occupational illness (Barret & Browne, 2006).

The injury management process should be driven and managed by an experienced and competent injury management or return to work [RTW] coordinator. A systematic review conducted by Franche et al. (2005). Franche *et al.* found evidence supporting greater effectiveness of RTW interventions that included a RTW coordinator, with shorter duration and lower costs.

Shaw *et al.* (2008) conducted a review of RTW intervention studies in the medical and nursing literature to more clearly identify a preliminary set of professional competencies to perform this role. Table 21 in the review conducted by Shaw *et al,* (2008) summarises the RTW coordination activities located in the literature. This is a comprehensive list of activities and provides good insight into the role of the RTW coordinator in driving optimal outcomes.

Table 21: Return to Work Coordinator Activities (Shaw et al., 2008, p. 9).

	Citations	[38]	[16–19]	[20]	[39–46]	[47]	[48]	[49–51]	[21]	[22–26]	[27]	[28]
	RTW coordination activity											
1	Meet on-site with worker, supervisor, stakeholders		X	X	X	X				X	X	X
2	Inventory/prioritize perceived problems or barriers		X	X						X	X	
3	Assign responsibilities to implement job modifications		X		X					X		
4	Provide worker training and instruction at the worksite		X	X			X		X		X	
5	Check on implementation of job modifications		X							X	X	
6	Resolve differences in plans from multiple providers		X									
7	Collective brainstorming of possible solutions		X							X		
8	Obtain organizational support for job modifications	X	X									
9	Brief ergonomic assessment of physical risk factors			X	X		X		X	X	X	
10	Assessment of workplace psychosocial stressors			X								
11	Direct observation of work tasks		X	X			X		X		X	
12	Review daily pain diary with worker			X								
13	Provide on-site physiotherapy at the workplace											
14	Develop plan for work modifications	X					X		X	X	X	X
15	Facilitate access to on-site physician						X					X
16	Review physician restrictions with worker				X						X	
17	Discuss accommodation requests with supervisor				X			X		X	X	X
18	Conduct formal ergonomic job analysis				X				X			
19	Meet with health & safety personnel to discuss case				X							
20	Query supervisor on specific job tasks and activities	X			X						X	X
21	Facilitate agreement on acceptable accommodations	X			X			X		X		
22	Query worker about ways he/she performs job tasks				X							
23	Advocate/express concern for worker well-being	X										
24	Meet face-to-face with worker early on									X		
25	Clarify role of RTW coordinator to worker											
26	Respond to individual concerns of worker									X	X	
27	Discuss the possibility of modified work with worker					X					X	
28	Generate written report with recommendations										X	
29	Follow-up or post-RTW ergonomic evaluation	X									X	

Shaw et al. (2008) found that the main competencies of the RTW coordinator are as follows:

- Ergonomic and workplace assessment;
- Clinical interviewing;
- Social problem solving;
- Workplace mediation;
- Knowledge of business and legal aspects; and
- Knowledge of medical conditions.

In Table 22 of Shaw *et al*, (2008) review, the authors provided a summary of the core competencies of the RTW coordinator as described in the intervention studies.

Table 22: Competencies of Return to Work Coordinators (Shaw et al., 2008, p. 11).

	Ergonomic and workplace assessment	Clinical interviewing	Social problem solving	Workplace mediation	Knowledge of business and legal aspects	Knowledge of medical conditions
Meet on-site with worker, supervisor, stakeholders		•	•	•	•	•
Inventory/prioritize perceived problems or barriers	•	•	•	•		•
Assign responsibilities to implement job modifications	•		•	•	•	
Provide worker training and instruction at the worksite	•	•	•			•
Follow-up on implementation of job modifications	•		•	•	•	•
Resolve differences in plans from multiple providers			•			•
Collective brainstorming of possible solutions	•	•	•	•	•	•
Obtain organizational support for job modifications	•		•	•	•	•
Brief ergonomic assessment of physical risk factors	•					•
Assessment of workplace psychosocial stressors		•	•			•
Direct observation of work tasks	•					•
Review daily pain diary with worker		•				•
Provide on-site physiotherapy						•
Develop plan for work modifications	•		•		•	•
Facilitate access to on-site physician		•				•
Review physician restrictions with worker	•	•	•		•	•
Discuss accommodation requests with supervisor	•		•	•	•	•
Conduct formal job analysis	•					•
Meet with health & safety personnel to discuss case	•		•	•	•	•
Query supervisor on specific job tasks and activities	•		•	•	•	•
Facilitate agreement on acceptable accommodations	•		•	•	•	•
Query worker about ways he/she performs job tasks	•	•	•			•
Advocate/express concern for worker well-being		•				
Meet face-to-face with worker early on		•				
Clarify role of RTW coordinator to worker		•		•	•	
Respond to individual concerns of worker	•	•	•			•
Discuss the possibility of modified work with worker	•	•	•	•	•	•
Generate written report	•				•	•
Follow-up or post-RTW ergonomic evaluation	•	•	•	•	•	•

This provides valuable insight in the role of the RTW coordinator and the daily activities required to ensure the ill or injured worker is supported in their RTW coordination to deliver successful outcomes.

Pransky *et al.* (2010) advises that there is limited research on the role and successful activities of RTW coordinators, with the exception of the previous study of Shaw *et al.* (2008).

Pransky *et al.* (2010) interviewed 143 RTW coordinators. It was established of these RTW 80% had more than 5 years experienced. Results revealed that the core competencies determined by the RTW coordinators are displayed in Table 23.

Table 23: Return to work Coordinators Core Competencies (Pransky et al., 2010, p. 44).

Item	Mean rating	SD
Respecting and maintaining confidentiality	4.80	0.480
Having ethical practices as a RTW coordinator	4.67	0.621
Having listening skills	4.60	0.625
Ability to communicate well verbally (phone, in person) and in writing (including email)	4.59	0.604
Being consistent between what you say and what you do	4.56	0.574
Being approachable and available	4.52	0.644
Being committed to the goal of early RTW	4.51	0.705
Ability to relate well to workers and employers	4.50	0.655
Ability to respond to others in a timely fashion	4.49	0.724
Ability to instill trust and confidence in your role as the RTW coordinator	4.49	0.589
Having organizational and planning skills	4.47	0.694
Being respectful of other people: their role, their beliefs and their cultures	4.43	0.701
Ability to sort through data and identify what is important	4.40	0.687
Being able to communicate in a non-threatening way	4.40	0.697
Ability to uncover and evaluate underlying problems affecting RTW	4.39	0.725
Being honest and frank in communications	4.35	0.689
Ability to adjust communication to a particular situation and individual people	4.35	0.755
Ability to evaluate and accurately describe job requirements	4.35	0.736
Having patience with each stakeholder involved in the RTW process	4.34	0.667
Having relationship-building skills	4.34	0.752
Ability to focus on facts and accurate information	4.33	0.684
Being diplomatic and tactful	4.33	0.741
Ability to work effectively as part of a team	4.33	0.794
Being fair and objective in judgment and actions	4.33	0.664
Ability to effectively deal with stress, deadlines, and expectations	4.32	0.692

There were no further studies or reviews that could be located post 2010, despite this the information and detail on the core competencies of RTW coordinators provides valuable insight into the key competencies of RTW coordinators and the complexities that employers and their employees face when returning ill or injured people back to work.

3.13 Summary

In this chapter the literature review methodology was discussed, therefore allowing for future research to have access to than understanding how the literature reviewed was discovered. LDC where defined and the various categories of LDC were discussed. The small group of LDCs that have minimal pathology to support incapacity and the resulting long term disability was highlighted which are referred to as Apparently Disproportionate Outcomes or ADO's. The statistics associated with LDCs nationally and within Western Australia were reviewed. Claims greater

than 60 days loss time off work or more [LDCs] account for 12% of the total number of claims, yet accounted for 88% of the total costs of national workers' compensation costs (Safe Work Australia, 2012b).

Previous research on workers' compensation claims was reviewed, specifically targeting pre-incident variables or intervention. Whilst the literature review could not identify such research or studies, extensive research was located on psychosocial variables with injury and long term disability. National and international studies comment on individual, organisational and psychosocial factors as the cause of ongoing disability and delayed recovery. International studies of Bernacki *et al.* (2007) and Schultz (2002) both identified that long term disability and cost and cost escalation was as a result of multi-factorial including gender, company size, high premiums, reporting delays, attorney involvement, higher requirements for co-work support, higher skill discretion and higher psychological and physical demand.

These studies and research do not look at these variables prior to the onset of the illness or injury occurring, to establish their contribution to causing or contributing to the disability, illness or injury. Research into prevention of negative individual, organisational and psychosocial factors prior to the incident is vital to the prevention of illness, injury and long-duration disability. The author believes that whilst the traditional methods of preventing disability i.e. tertiary preventions, such as addressing the issue of safety in the workplace, management of workers' compensation claims and implementing injury management and rehabilitation processes, the effectiveness of such methods will be limited unless the fundamental problem of workplace wellbeing prior to the incident or injury is understood. Primary and secondary measures relating to identifying and preventing ill health and injury bought about by an increased understanding of factors contributing to ill health and injury and more specifically LDCs, are needed to ensure improved prevention and management of these claims.

Psychosocial research and the Task Force reviews on individual, organisation and psychosocial factors were reviewed and discussed in this chapter. Detail was provided on this area of knowledge and The Flags Model was expanded from this research to include a green flag, which is predictors of LDC pre-incident or workplace illness and injury.

From the literature review it was also evident that certain conditions within the economic environment can assist or detract from claims becoming long in duration and this was discussed in further detail. In the Causal Diagram for Job Dissatisfaction / Job Avoidance and LDCs Figure 41), which displays how these economic conditions effect the incidence of LDCs throughout the various levels that exist.

The chapter introduced and displayed the model of management proposed to assist with the reduction and hopefully elimination of LDCs. The model is based on the theory that effective employee and organisational health management will prevent and reduce the effects of ill health and injury from occurring from the day-to-day effects of work itself and the organisational design and makeup. In the literature review it was identified that good employee management was not only important to ensure employees were happy and productive at work but to also assist with employee motivation to return to work after work related ill-health or injury.

A conclusion of the comprehensive review of published literature was that there was a gap in knowledge about the pre-claim causes of long-duration workers' compensation claims and where interventions may be made to prevent, or at least to minimise, employees with no significant pathological cause, with workers' compensation claims extending for more than 60 days away from work successfully returning to work earlier. The next chapter of this report describes the methodology used to conduct the research on the prevention of long-duration workers' compensation claims by identifying where to include pre-claim interventions and strategies.

4.0: Methodology

4.1 Introduction

The purpose of this chapter was to outline the research methodology for this study. The scope of the research was to explore the potential influence of selected variables on the incidence of LDC in Western Australia. The aim of the project was to determine if certain personal, health-related, work-related exposures and or psychosocial factors were associated with long-duration injury claim outcomes.

This chapter addresses the recruitment of participants and obtaining consent; sampling procedures; methods of data collection; the limitations of data collection; methods of data analysis; the measures taken to determine the validity and reliability the findings; maintaining participant's confidentiality; and discussion of the ethical considerations of this research.

4.2 Study Design

This project was carried out as a case-control study. The comparison of cases and controls allows for the difference between the case and control groups to be evaluated and help provide an answer(s), to the problem or matter being investigated (Yin, 2009). Case control studies include a control group of subjects who are not exposed to an intervention or do not possess the characteristic under investigation. Control groups allow investigators to ascertain an understanding of the complexity of the circumstances i.e. real life events, small group's behaviour, organisational and managerial processes. The case control approach allows for a "holistic and appreciably realistic overview of the complexity surrounding injuries in the workplace" (Yin, 2009).

Case control was chosen as a preferred study design as it was evident from the literature review that previous studies in this area of research were limited. It was identified from the literature review that a number of the previous reviews conducted on individual, organisational and psychosocial factors were published as critical

reviews of the literature, with no research or studies conducted to support or gain a greater understanding of the evidence obtained in the literature reviews (Bernacki et al., 2007; McIntosh, Frank, Hogg-Johnson, Hall, & Bombardier, 2000; Pincus et al., 2002; Steenstra et al., 2005; Turner, Franklin, & Turk, 2000).

A number of studies were conducted post incident or injury using questionnaires and pain scales to determine the chronicity of injury and determine the potential impact of individual, organisations and psychosocial factors (Schultz et al., 2005; Schultz et al., 2002; Smith et al., 2014).

Further studies of Bernacki *et al*., 2007; and Smith *et al.,* (2014) utilised existing workers' compensation databases to collect data, however not all the data was available for the research questionnaire requirements and as such a certain degree of interpretation of data was required to collect information for the pre-claim prevention of long-duration workers' compensation claims research. For example in Smith *et al.,* (2014) researchers were required to determine the occupational strength associated with an occupation using the National Occupational Classification career handbook. From the occupational title and using this handbook researchers determined the physical demands of the job, whereby a certain degree of interpretation by the researcher was required.

As this was exploratory and innovative research to gain deeper information on analysis of the SDC and LDC claims, and in particular the pre-incident variables that effect claim outcomes it was determined that using the case control research design to gain a better understanding of the pre-incident variables would provide the best opportunity to gain clean data which was collected for the sole purpose of this study. It was also established that utilising a case control study design would assist to minimise problems such as coding issues, interpretation and biases by generating a specific database from which to analyse data for this research.

In this study, those participants with a long-duration work illness or injury claim were defined as the cases (LDCs) and compared with individuals with a short duration claim (SDC). Previous experiences and exposures to suspected aetiological factors were measured. Controls in this study required the following qualities:

1. The control must be at risk of getting the disease or identified trait (Yin, 2009). SDCs are the control for this research as the employee is at risk of having a LDC due to several components which include similar:
    a. Employee demographics;
    b. Type of organisation, management philosophies and practices of the organisation; and
    c. Work environment that the employees works within.

The controls or SDCs did resemble the cases of LDCs except for the duration of time off work. This research specifically aimed to identify the factors that contribute to the development of LDCs.

2. Comparability is more important than representativeness in the selection of the controls (Paneth, Susser, & Susser, 2002). Comparability between SDCs and LDCs was achieved as at the onset of the claims, they had similar factors which included employment, organisations management philosophies and the presence of a compensable work related illness or injury.

In conventional case control studies, the cases are assembled as soon as possible after diagnosis and preferably in a consecutive manner (Begg & Gray, 1987). To obtain sufficient LDCs for this research the questionnaires were distributed over a two year period.

Exposure status was measured to assess the prevalence or level of exposure for each employee and/or employer for the period of time prior to the injury or illness under

investigation when the exposure would have acted as a causal factor (Public Health Action Support Team, 2011). In this research, the exposure status defined the cases; LDC or injured employees who had been unable to return to work within 60 days, and the controls, SDC who had successfully returned to work within 60 days of the illness or injuries. The LDCs are classified as prevalent cases as a period of greater than 60 days post the incident or injury would have had to transpire and also the time prior to the incident to when the pre-claim variables would have acted as a casual factor, which dependent on the case, may be several months, if not years.

4.3 Ethical Considerations

Prior to the commencement of the research ethics approval was obtained from Curtin University Ethics Committee. Given that the research sought participants to advise of the presence or existence of variables prior to their injury, minimal impact (both physically and psychological), if any, was likely to result for the participant. Ethics approval for the initial research design was also obtained from Curtin University Ethics Committee, and was given with the ethics approval number of HR54/2008.

All registered insurers within the Western Australian workers' compensation scheme were contacted and asked to assist by distributing questionnaires. Two registered insurers agreed to assist with the distribution of questionnaires to LDC and SDC workers and employers of the LDC and SDC workers over a period of two years, on the basis that the study was conducted as a blind survey and privacy laws were complied with.

Administering a blinded questionnaire to the ill or injured employees and their employers would provide assurance to the parties regarding to confidentiality, given that the questionnaire sought clarification on variables that existed prior to the injury. Completed questionnaires were sent directly to the lead supervisor at Curtin University. These methods were reviewed and deemed appropriate to adhere to The Privacy Act of 1988 of Australia.

The blind questionnaire method allowed the insurers to identify injured employees and employers whose employees had sustained injuries, however would not be in a position to know who had elected to participate in the research. As such it was not possible for surveys to be coded in a way that would identify if the ill or injured employee and the employer of that employee had both completed the questionnaires. This in turn provided a major limitation in that it did not allow for any analysis or comparison on the results and information provided by the ill or injured employee and their employer.

A potential risk to the insurer could lie with the injured worker's agent or nominated representative, claiming that the worker answering the questionnaire for this research was prejudicing their claim or future proceedings. This risk is negligible to limited given that the questionnaire does not ask the ill or injured employee information regarding how the incidence occurred or establish information regarding the employee's potential defence. The measures undertaken to maintain the confidentiality of the individual and their information did not allow an opportunity to identify the worker from the information collected.

Ill or injured employees and employers who participated in this review did not have their workers' compensation entitlements affected as a result of their participation in this research.

During the data collection, data analysis and publishing phases, no reference was made to the individual injured or ill employee or their employer as individuals and their employees were not known. This was to maintain the confidentiality of the identity of the parties involved in the research and therefore participants could not be traced. The data analysis provided results shown as group data only.

The data collected was, and continues to be, stored in a locked and secure location (filing cabinet) for a 5 year period. After this period the documents and information will be destroyed. During this period at no time will the information seen by other

parties. To ensure confidentiality the completed questionnaires, consent forms, personal details and contact information were only accessible to the independent researcher, the research supervisor and the researcher.

In obtaining ethics approval the research methodology, research questionnaires for the ill or injured employees and the employers of ill and injured employees were reviewed and scrutinised by Curtin University Ethics Committee to ensure that the research was scientifically sound and clearly described in the study protocols (School of Public Health and Preventive Medicine, 2011).

Both WorkCover Western Australian and WorkSafe Western Australia were contacted and their support and consent for the research to commence was obtained.

Other methods of maintaining the validity and reliability of the data being collected included assuring that the employee or employer was not inadvertently treated or influenced for treatment. This was achieved by having the employee and employer complete a non-intrusive and non-threatening questionnaire.

4.4 Development of Questionnaire

The purpose of the questionnaire was to determine the factors that might be associated with a LDC in the workplace. Examination of the circumstances leading up to an event, including collecting data, analysing information, and reporting the results enabled the researcher to gain a sharpened understanding of why LDC developed as they did, and what might become important to look at more extensively in future research (Flyvbjerg, 2006).

An initial questionnaire was developed for the purpose of conducting a three-month pilot study. The research aimed to capture responses of the ill or injured employees and their employers on the same injury claim. The survey was designed through

literature review and collaboration with stakeholders. These stakeholders included WorkCover WA and Worksafe WA. Feedback was obtained from this initial review of the questionnaires and discussed with the research supervisor and minor changes made to the research questionnaires.

Research was conducted to locate valid and reliable questionnaires relating to this area of research. Li *et al* (2001) used the Job Satisfaction Scale (JSS) and The Job Stressor Source Inventory (JSSI) when developing the questionnaire for their research. The JSS includes various categories including organisation, career and job insecurity. The JSSI includes various categories including career goal, relationships at work and organisational structure and culture. These questionnaires/scales were reviewed and question selected for this research. Specifically questions on job satisfaction, career goal, and relationships at work.

Lee-Kelley (2006) research on Locus of Control and attitudes to working in virtual team's research utilised the Hackman and Oldman's Job Diagnostics Survey to measure overall job satisfaction. In conjunction with the questions relating to this measure and respondents demographics were adopted from Lee-Kelley's (2006) research. Lee-Kelley's (2006) subsequent research on the dynamics and composition of teams looked at the role of mastery, goal and performance mastery orientation on teams and their effectiveness. Lee-Kelley' questionnaire was adapted for this research to include questions on worker team orientation to identify whether mastery, goal or performance mastery orientation contributed to the onset of LDCs (Lee-Kelley, 2006).

The General Health Questionnaire from Mussett (1991) was adapted to collect employee health status for this research. Mussett's research from 1991 used the General Health Questionnaire from Goldberg and Hillier (1979). Since being published the General Health Questionnaire has been cited in 3531 publications, has been translated into 38 different languages and is one of the most commonly used assessments of well-being (Jackson, 2007).

Upon constructing the questionnaire further reviews and modifications resulted. This occurred in several stages. Initially the questionnaire was reviewed with the research supervisor, several minor changes resulted including grammatical errors and rewording. After this the questionnaire was reviewed by peers who also suggested minor rewording. Upon conducting the peer review, the feedback obtained was discussed with the supervisor and the minor changes implemented.

An independent interviewer who was well trained and had vast experience in administering questionnaires and research was recruited. The independent interviewer was provided significant training on both this research and the questionnaires for both the ill and injured employees and employers of ill and injured employers. The independent researcher was also provided training on the workers' compensation system, the research questionnaires and terms commonly used in the industry.

After training with the independent interviewer, the questionnaires were reviewed and some interim changes were made to assist with administering the questionnaire, removing industry jargon and to simplify the questions being asked.

Throughout the pilot study, meetings were held with the independent researcher and the research supervisor to review and discuss feedback obtained from participating ill or injured employees and employers of ill and injured employees. Further minor amendments to wording were made to remove ambiguity and minor changes to the sequencing of the questions were made to make the questionnaires flow better and make the questionnaire easier to complete.

4.5 Recruitment of participants

4.5.1 Sampling Procedures

Participating groups were asked to identify injured employees who had sustained an injury at work during the approved 2-year period. Participating groups were asked to ensure that participating employees and employers met the inclusion criteria.

Claims excluded within the research included claims that were consistent with the red flags or symptoms including the following:

- Features of Cauda Equina especially urinary; retention;
- Bilateral neurological symptoms and signs;
- Severe, unremitting night pain;
- Pain that gets worse when the person is lying down;
- Psychological or stress claims;
- Fever;
- Significant trauma.

In the pilot study, employers were contacted and asked to complete questionnaires for injured workers who had a LDC or SDC during the period of two years research. Employers were also asked to enquire whether the injured employee was willing to participate in the research and if they were, information brochures, the survey, the consent form and the questionnaire were provided to the injured employee for them to consider.

Due to the poor response rate from the questionnaires sent out to injured employees and employers of injured employees by the participating insurers, it was agreed to make contact with employers directly to establish if they would participate in the research and ask employees to participate in the research.

In a further attempt to seek sufficient responses to the questionnaires, the Seacare Commission was contacted to establish if they would assist with distribution of

surveys to injured employees and their employers who were governed by the Seafarers Rehabilitation and Compensation Act of 1992.

The Seacare Authority [Seacare] consented to distributing to worker's and employer questionnaires to ill or injured seafarer and employers in the maritime industry. Seacare provided information brochures on the research, the survey, consent form and the questionnaire to all injured employees for the period of two years.

The final method of distribution of surveys was at various medical centres situated throughout the Perth Metropolitan area. Medical clinics situated in the northern and southern suburbs of Perth asked injured employees presenting for treatment for workers' compensation claims to consider being participants in the research and were provided with information brochures, the survey, consent form and the questionnaire to give to the injured employees. If injured workers chose to complete the questionnaire they could do so and return the completed questionnaire and consent form to the research supervisor at Curtin University.

The various medical centres also sent employers of injured employees a copy of the questionnaire and information brochures attached to a copy of the medical account associated with the recent workers' compensation visit.

A total of 1955 surveys were distributed to the various distributors of the questionnaire.

The use of registered insurers, the Seacare Authority and medium to large employers who have good standards of record collection and data storage were used to assist with the distribution of questionnaires to ensure data integrity.

The ill or injured employee completed a questionnaire providing information on conditions and factors that existed prior to the incident or injury as well as organisational factors. Employers completed a separate questionnaire that allowed them to provide their interpretation on those same conditions, factors and organisation factors. Surveyed participants had the option of electing to complete the questionnaire provided at the time of distribution or alternatively to have the independent researcher contact them to administer the questionnaire verbally via a telephone call.

The questionnaires were administered in a blind manner, whereby the privacy of the participants was maintained. If the participants chose to participate in the research, they did so by electing to complete the questionnaire that was sent to them or to complete a form providing their best contact details to the independent researcher and the best contact times.

The participants were asked to provide their consent by completing a consent form and were then asked to return the completed questionnaire or the form asking the independent researcher to contact them to administer the questionnaire over the telephone, and the consent form in a self-addressed and pre-paid enveloped provided.

4.5.2 Obtaining Participant's Consent

The agents who distributed the questionnaires randomly sampled participants; as such the employee or employer included in the study agent had equal chance of inclusion in the study.

A consent form was developed. The consent form provided a brief outline of the process and contact details allowing the worker to clarify issues with the principal researcher or an independent representative. The participants were also to be provided information to allow a greater understanding and insight into the research

proposal a Statement outlining the Research Proposal; and a copy of the Privacy Statement Relating to the research proposal. See Appendixes 2, 3 and 4 for the participant's information letter and consent forms.

4.6 Pilot Study

It was deemed important to have both the ill or injured employee and the employer to comment on the similar work injury claim. Comparisons of the completed questionnaire responses from the ill or injured employee were then made, so to establish any potential for difference between the selected variables being surveyed. For the Pilot Study a total of ten questionnaires were received and analysed. This represented 5 employees and 5 employer questionnaires. The completed questionnaires were analysed and feedback was obtained from injured employees, employers, participating insurers, and medical practitioners from participating medical centres. As a result of the feedback of the participating groups the questionnaire was re-written to clarify questions being asked and scales were modified to ensure consistency across all questions. The revisions to improve validity and reliability that were made to the questionnaires were based on feedback from the pilot study findings.

4.7 Final Methodology

After the completion of the pilot study, feedback was received from the various stakeholders, the methodology was finalised. An updated questionnaire was finalised and disseminated to the registered insurers, participating employers, the Seacare Authority, and participating medical centres were provided the updated questionnaire, information brochure and consent forms for employees and employers of injured employees. The manner of distribution is illustrated by Figure 17.

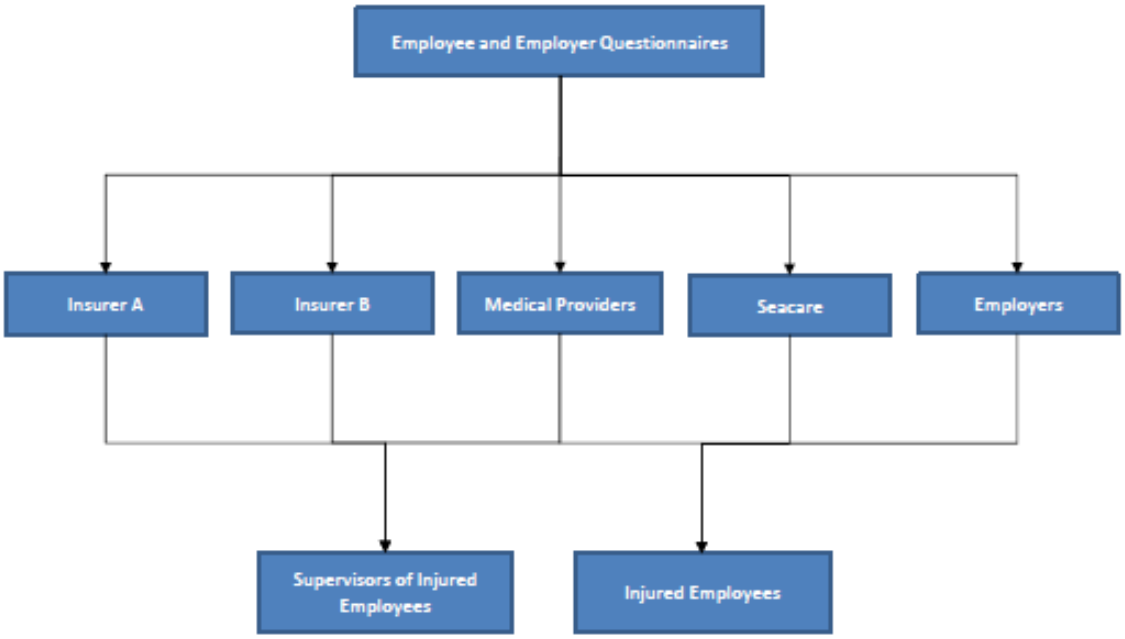


Figure 17: The distribution of the finalised questionnaire.

The data collection was over a two-year period after the completion of the pilot study. Questionnaires, information brochures and consent forms were distributed to participating registered insurers, participating employers, The Seacare Authority and participating medical centres. Questionnaires included both versions for the employee and employers of ill or injured employees. The ill or injured employee and associated employers were asked to send completed questionnaires, consent forms and other relevant documents supporting their claim or relevant information in the enclosed self-addressed envelope directly to the Lead Supervisor at Curtin University.

Insurer Distributed Questionnaires

Both Insurers contacted a random sample of ill or injured employees and employers who submitted claims during the period nominated period to request their participation on the research. A total of 1355 questionnaires were distributed to the participating insurers.

Seacare Distributed Questionnaires

The Seafarer's Rehabilitation and Compensation Act [SRCA] of 1992 is administered by a division of Comcare referred to as Seacare. Seacare contacted ill or injured seafarers who submitted a workers' compensation claim with their employer, who in turn lodged claims forms with the Seacare Authority during the two year period. Seacare were provided copies of the questionnaire, consent form and brochure to employees and employers outlining the aims and purpose of the questionnaire.

The number of completed surveys from employees who submitted a claim form was 20. Whilst a response rate cannot be determined for the questionnaires distributed through Seacare, as a guide in the 2007-2008 Comcare reported that 179 claims were lodged in that financial year (Commonwealth of Australia, 2008).

Participating Employers Distributed Questionnaires

Medium to large employer groups were contacted and asked to assist with the distribution of questionnaires to ill or injured employees. A total of 250 questionnaires were distributed to 6 participating employers.

Medical Providers

Ill or injured employees who attended participating medical facilities were asked by administration staff to complete questionnaires whilst they waited to be reviewed. A total of 350 questionnaires were distributed to the 2 participating medical practices in the Perth metropolitan area.

Review of Completed Questionnaires

All completed and returned questionnaires from ill or injured employees and employers of employees claiming workers' compensation were reviewed by an independent reviewer. If the questionnaire was incomplete or had information missing the independent interviewer made contact with the relevant employee or employer, if they had elected to provide their contact details for future contact in order to obtain missing information.

4.8 Data Analysis

The statistical tests employed in this case-control study were the summary of descriptive, Z-test of proportions, Independent T-tests of continuous data, Chi-square analysis (Pearson and Fisher's Exact Test), Spearman's correlation, non-parametric comparisons of distributions, and binary logistic regression. Descriptive statistics provides an understanding of the data and what the data demonstrates.

Frequencies are a form of descriptive statistics that conveniently summarise the data by counting the responses for each given variable. These counts or frequencies are normally accompanied by the percentages and cumulative percentages. Frequencies quickly show the number of nonresponses or missing values, outliers and extreme values and the central tendency, variability and the shape of the distribution (Minitab, 2014). Frequencies were calculated for all categorical variables.

Frequencies and percentages were calculated for all categorical variables. Comparison of categorical data was made with Z-test of proportions to determine any dissimilarity across the type of injury duration claim. Pearson Chi-square tests were used initially to determine any potential for associations between the categorical variable and the Type of Injury sustained. For categorical variables which had more than 2 levels, if cells were found to have a frequency <6, the variable was transformed and data grouped to test aggregated associations with a 2x2 contingency table using a Fisher's exact Chi-square test.

Z tests or Wald tests are conducted to determine if two populations have significant differences in the variables being investigated. In simply terms Z-tests inform whether there is a difference between the categories being investigated (Weaver, 2011). In this research Z-tests were used to determine if there was a difference in the test cases of LDC and the controls or SDCs.

Chi-square tests also known as Pearson Chi-square tests or also referred to as Cross-tabs are used to test for independence or if there is a relationship between two categorical variables (Flynn, 2001). In this research chi-square testing was used to determine any potential associations between the categorical variable and the Type of Injury. For categorical variables which had more than 2 levels, if cells were found to have a frequency <6, the variable was transformed and data grouped to test aggregated associations with a 2x2 contingency table using a Fisher's exact Chi-square test.

Mean, standard deviation, and range were calculated for normally distributed continuous variables. These are tests associated with the measurement of the data being collected and analysed. Mean is the average response or findings of the data being collected. A problem with mean is that it is sensitive to outlying points. As such range is an important measurement that provides the top and bottom range and shows the findings furthest removed from the normal population (Mullee, 1995). Standard deviation is used to provide further information on the data being analysed that assists by showing the variability or spread of the data collected. With this information observations about the mean can be conducted (Mullee, 1995).

The level of statistical significance for all variables was reported for both the 5% and 10% level in this research.

For continuous variables with positively skewed distributions the median and inter-quartile range (25% and 75%) was presented. These variables were compared across the Type of Injury using non-parametric independent sample median tests.

Spearman testing determines the "ranked difference between the measurements, for the two variables" (Zar, 1972, p. 578). Spearman's correlation test was predominantly used to determine the correlation (if any) between the selected categorical variables, usually ordinal data/Likert Scales, and the Type of Injury.

Binary Logistic regression was utilised to determine the odds or influence a certain characteristic would have on the outcome of Long-duration Claim. The sample population was so small that all the variables could not be computed as they out-numbered the sample. This meant that the regression model had to adapt, hence variables that exhibited statistically significant differences across the Type of Injury claim at the 5% and 10% level for the aforementioned statistical techniques were selected. To enhance the regression model variables possessing a high intra-class correlation to create a model that best represented the multifaceted nature of an injury being sustained in the workplace were included.

Receiver Operator Characteristic (ROC) curves were calculated from the predictive values of the final iteration of the binary logistic regression output. This analysis provided the Area under the Curve (AUC) and the associated 95% confidence intervals for both the employee and employer models for the predictive ability of the important variables on the LDC outcome.

Answers to the questionnaires were coded in the exact same way as they were on the questionnaire as to how they were entered into SPSS database to ensure all data was recorded, handled and stored in a way that allowed accurate reporting, interpretation and verification (School of Public Health and Preventive Medicine, 2011).

4.9 Validity

Leininger (1985) defines validity as 'gaining knowledge and understanding of the true nature …. of a particular phenomenon …. and reliability focuses on identifying and documenting recurrent, accurate and consistent or inconsistent factors' (Leininger, 1985, p. 68).

Validity is the degree to which an instrument measures what it is intended to measure. There are several types of validity, these are as follows:

i. **Face validity -** is the extent to which a research tool, such as a scale or a system of classification, appears to give logical answers. Face validity in this research was addressed by including demographic questions within the questionnaire for example gender and age and by developing a simple Likert scale where participants were asked to provide their responses on a scale of 1 to 5. The pilot study created face validity and allowed opportunities for feedback from the supervisor, peers and the independent researcher.

ii. **Content validity -** is the thoroughness or completeness of the research measuring tool(s) used in the study. To have high content validity the tool needs to be constructed on theoretical or logical grounds and to identify the full range of underlying concepts of the research problem or question (Guion, 1978; Leininger, 1985). To ensure content validity in this research the questionnaires used provided answers to all of the factors being focused on and asked both the employee and employers the same questions, therefore ensuring more valid answers were received. Because this is a new study within the field, there were limited expert comparisons available. To ensure content validity a wide range of expert opinion were sought to review the questionnaire and research. This included the research supervisor, an expert injury management consult practicing in the field, an Occupational Physician with workers' compensation and injury management experience, a practicing's workers' compensation solicitor and general practitioners

working in the injury compensation and injury management industry.

Another method of enhancing the validity of the findings was to obtain the perspectives of both ill or injured employees and employers to allow some comparison in the data being collected and therefore results of the research.

iii. **Criterion validity -** If there is a "high correlation, (similar score), between the tools used in the research and previously used research tools which have demonstrated high face validity, and then the research tool used has criterion validity" (Leininger, 1985, p. 69). The criterion validity was achieved in this research by adopting several previous peer reviewed research questionnaires (including the General Health Questionnaire, Job Satisfaction Scale, Job Stressor Source Inventory) to develop the current employee and employer questionnaires. Criterion validity was tested using Spearman correlation on categorical variables and Pearson correlation for continuous variables on the survey tools.

iv. **Construct validity -** is a measure of the extent to which the research measures the ideas or variables that the researcher wants it to measure (Leininger, 1985). The construct validity of this research was considered high as the variables identified in the literature review that needed to be measured were included in the employee and employer questionnaires. A convergent validation approach was utilised to test the construct valid. Construct validity was determined by including the ROC curve analysis in this research.

v. **Internal validity -** describes the effect of the research methods used on the findings. Internal validity is needed for any research study that aims to identify a cause of results (Leininger, 1985). Internal validity was achieved in this research as the questionnaire provided all of the data being analysed and used to interpret findings. In this research internal validity was achieved by the questions included in the questionnaire. The questions were included after

detailed literature review and based upon expert opinion. However tests for association, including chi square analysis, were compromised by the selection bias due to the very small response rate and overall sample size of this research.

vi. **External validity -** refers to the researcher's ability to generalise the findings obtained from the study sample to the larger population from which the sample was drawn (Leininger, 1985). For this research this was complex due to the small sample size and the limited amount of similar research in this field. Due to this being an innovative research topic, the survey tools used has not been validated in other studies and the questions used were piloted in this research, with the exception of the General Health Questionnaire, which has been utilised extensively in other research.

This research is considered valid due to the following four criteria:

- Credibility (Byrne, 2001; Patton, 1999) was achieved by comparing the findings of the data analysis against other data and with well published literature on related studies.
- Aptness (Rogelberg, 2002; Rosenthal & Rosnow, 1991) was achieved by finding other comparable studies and determining what, if any themes emerged.
- Auditability – this is achieved by allowing other researchers to follow the trial of this research to be able to conduct similar research and replicate the findings Rea and Parker (2005), Miles and Huberman (1994) and Bakker (2012).
- Conformability – according to Miles and Huberman (1994) and Bakker (2012) this is achieved once the above criteria are achieved. In this research all data was reviewed against previously published data on related subjects and similar trends identified.

4.10 Reliability

In this research inter-rater and inter-observer reliability was achieved through the design of the questionnaire. An effort was made to standardise the respondents to the questions, which ensured that individual interpretation of questions was minimised. Also having a set list of questions ensured that each respondent provided a similar level of information.

As the main data collection tool was a set questionnaire, test-retest reliability is present and this tool can be utilised for other populations' research.

Cronbach's alpha, developed by Lee Cronbach in 1951 (Tavakol & Dennick, 2011), is commonly used to measure the internal consistency of test results across survey tools. Cronbach's alpha is expressed as a number between 0 and 1. Tavakola & Dernick (2011) states that the acceptable values for Cronbach's alpha range from 0.70 to 0.95, to demonstrate good internal consistency between tools. Questionnaire responses were analysed using Cronbach's alpha and revealed that good internal consistency existed in both the employee and employer questionnaire. The application of Cronbach's alpha to determine the internal consistency of questionnaire results are included in subsequent chapter's reporting of analysis for each component of the project's results.

Internal consistency is improved by increasing the number of questions that are asked of a respondent and the associated data analysis in a questionnaire Tabladillo (1994). Consequently, in this research a large number of questions were included. The employee questionnaire included 78 questions and the employer questionnaire consisted of 33 questions. Specifically 10 questions were regarding the demographic information of the participant, 6 questions were to establish information relevant to pre-claim variables, the health questionnaire and the remaining questions related to organisation factors.

4.11 Bias

4.11.1 Information Bias

Selection Bias may be present in this study as a very small sample responded to the questionnaire, making this study not representative of the total population. This could have resulted from the fact that the research was conducted in a blind manner; making it difficult to prompt or encourage responses from the selected sample. Respondents who did participate may have also been influenced by other external factors, which led to their response.

To limit the effects of recall bias, the questionnaire was designed in a way, which required employees to answer with either categorical or binary outcomes. For example, Q: Did the company provide induction or safety related training? A: Binary answer (yes or no).

The research avoided differences in employee or employer recall of past events. This was achieved by constructing the questionnaire in a manner that based questions on facts relevant to the employee, the organisation and factors that existed prior to the incident or ill health occurring. However it is acknowledged that recall bias may have occurred from delays in the time of the incident occurring and completing the questionnaire. This applies to both the employee and employer respondents. Recall bias may be more predominant in the employer respondents due to the time lag between the incident and injury, dealing with other employees and incidents that occurred during the employees' tenure that may have affected the employer's opinion of the employee and their performance.

Recall bias may have occurred in conjunction with selection bias, as the inability to follow up respondents, led to the inability to ensure that either employee and employer respondents had access to contemporaneous documents that were created before the injury or ill health occurred.

4.11.2 Measurement Bias

Idaszak and Drasgow (1987, p. 19) advised that "measurement bias occurs when individuals with equal standing on the trait measured by the test, but sampled from different subpopulations, have different expected test scores".

According to Gross and Miller (1984) the following standards should be considered to ensure a well-designed study:

1. Predetermine the employee or employer selection method;
2. Specify the causal factors at the outset (if applicable);
3. Provide for unbiased data collection;
4. Avoid differences in employee or employer recall of past events;
5. Avoid constrained selection of cases and controls;
6. Use consistent methods of data collection;
7. Assure that the employee or employer is not inadvertently treated;
8. Assure that employee or employer included in the study agent has equal chance of inclusion in the study (Gross & Miller, 1984).

The design of this research was conducted in a manner to maintain the integrity of points raised by Gross and Miller (1984) and to minimise measurement bias.

Information collected from the questionnaire was either done by having the respondent complete the questionnaire, or by nominating to have an independent researcher phone them to ask the survey questions. In order to mitigate measurement bias during data collection, one independent researcher was utilised to collect information from all respondents.

Measurement bias may have affected results, as the survey tool utilised for this research was innovative and developed for this study. This survey tool has not been validated in other research. An effort to mitigate measurement bias was made by having part of the questionnaire adapted from previously validated research questionnaires, such as the health questionnaire from Mussett's research (Mussett, 1991).

4.11.3 Confounding Bias

Statistics revealed that males accounted for more workers' compensation claim and more specifically LDC outcomes. Older workers were more likely to incur an LDC (Safe Work Australia, 2014c; WorkCover WA, 2013).

From the literature review it was established that a number of employee groups were less likely to lodge workers' compensation claims. Women were less likely to lodge a workers' compensation claim or less likely to think that their claim was series enough to lodge a claim (Safe Work Australia, 2011b). In 2012-2013 37% of Australian workers' compensation claims that resulted in an absence from work of one week or longer were made by women while 63% were made by men, even though in the Australian employed population only 52% of employees were male. "Male employees made 13.4 serious claims per 1000 employees, compared with 8.5 serious claims per 1000 female employees" (Safe Work Australia, 2014c, p. 4). Older workers were also less likely to lodge a workers' compensation due to concerns with job security, unless the injury was likely to result in long term disability and injury (Safe Work Australia, 2011b).

These identified issues are can create problems with "the exposure under study and the given outcome in with the effects of an individual factor (or set of factors) resulting in a distortion of the true relationship "in that study (Skelly, Dettori, & Brodt, 2012, p. 9).

It was determined that it would be difficult to counteract these identified problems in this research, however to limit confounding bias further the research was designed in a manner to allow data to be free from further bias. To achieve this the data used for this research was collected for the sole purpose of the study avoiding the interpretation described above in Section 4.2. Further, whilst this was an innovative study, the researcher questionnaire was designed using previously validated questions.

By using clean data that was collected for the sole purpose of interpreting the causes of workers' compensation claims becoming long in duration due to pre-incident variables and the opinions and experiences of employees and employers could be explored in greater detail.

When determining criteria for the selection of cases to be included in this study, the possibility of confounding factors were considered and avoided if an influence on the results was a possibility. For example employees who had experienced an illness due to mental health issues were not included in the research due to the possibility that their memory or recall of the situation may have been impacted by their condition. Furthermore, these respondents were not wanted to be exposed to further pain or anguish caused by recalling pre-incident variables.

Respondents who were considered to have red flags were also excluded from this research. Their exclusion was warranted given that the existence of a red flag, which indicates the existence a serious medical condition, made them more likely to be categorised as a LDC. Including both mental illness and red flag cases would lead to the skewing the results of the research.

During data analysis, risk factors that had the potential to introduce confounding bias were measured and assessed through chi-square association test, and binary logistic regression, to determine if confounding bias might have influenced the Receiver Operator Characteristic (ROC) curve analysis.

4.12 Summary

This research was conducted as a case-control study. The particular trait or cases are LDC or ill or injured employees who have been unable to return to work within 60 days and the controls are SDC or ill and injured employees have successful returned to work within 60 days of the illness or injury.

Questionnaires were developed and distributed to ill or injured employees and employers of the employee who lodged a workers' compensation claim during the research period. The questionnaires obtained information to gain a better understanding of individual, organisational and psychosocial factors that existed prior to the employee becoming ill or injured. It was thought that by gaining an understanding of these pre-incident/claim variables analysis of the answers on the questionnaires would determine if strategies could be developed to prevent long-duration claims prior to the injury or illness developing.

Questionnaires to ill or injured employees and employers of employees lodging worker's compensation claims where distributed through several means. Registered insurers, medium or large organisations, The Seacare Authority and medical centres in Western Australia assisted by distributing questionnaires to ill or injured employees. All questionnaires were distributed to adhere to privacy legislation and as such distributed in a blind manner, therefore ensuring that identify of individuals was not obtained or distributed to an external third party.

A pilot study was conducted which included to 10 participants (this included 5 LDC and 5 SDC) to ensure the reliability and validity of the questionnaire. Relevant modifications were made and discussed with participating groups.

Data analysis using descriptive statistics for continuous variables; frequency and percentages were calculated for categorical data; binary logistic regression analyses to identify the minimum number of factors which independently contribute to the

development of LDCs; and, Receiver Operator Characteristic curves were generated from the predictive values of the final iteration of the binary logistic regression.

The following chapter presents the results of the statistical analysis of the data collected as part of this research to understand and explore whether individual, organisational and psychosocial factors contribute to the onset of LDCs.

5.0: Results

5.1 Introduction

This chapter discusses the quantitative data analysis conducted on data collected from both the Employee and Employer questionnaires.

Analysis was conducted to determine characteristics such as demographic and health information, factors relating to the Employee's position at work, organisational factors, job satisfaction and psychosocial factors. Additionally, analysis was conducted to determine what impact these employee characteristics had on the risk of sustaining a long-duration claim injury in the workplace in the West Australian context.

The characteristics of the Employer were also analysed to determine the potential workplace and organisational circumstances that may influence the risk of an Employee sustaining a long-duration claim injury in the workplace.

The statistical tests employed in this case-control study were descriptive summaries, Z-tests of proportions, Independent T-tests of continuous data, Chi-square analysis (Pearson and Fisher's Exact Test), Spearman's correlation, binary logistic regression and Receiver Operator Characteristic curves with Area Under the Curve outputs. The level of statistical significance for all variables was reported at the 5% and, were insightful, the 10% level in this research.

5.2 Questionnaire Response Rates

A total of 139 questionnaires were received with 71 employee questionnaires and 68 employer questionnaires being completed.

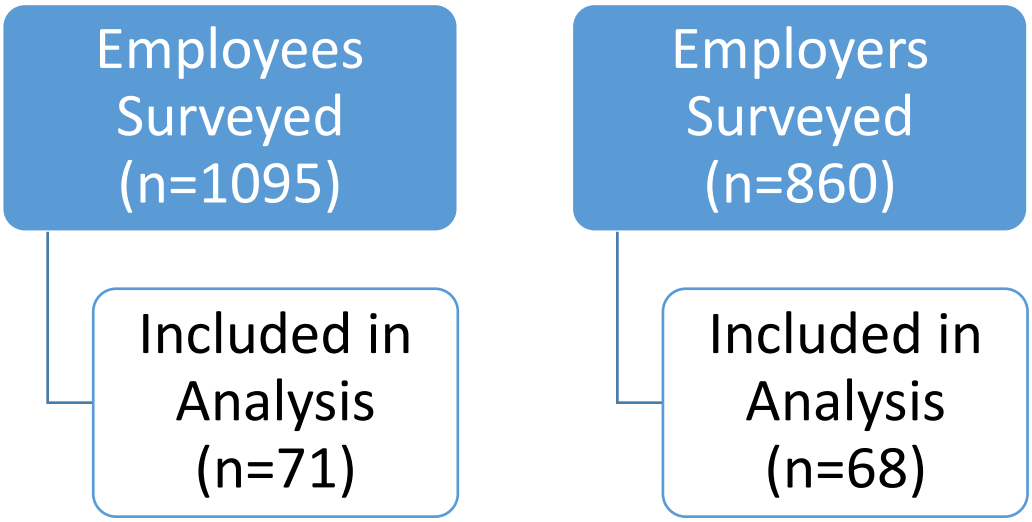


Figure 18: Questionnaire Response Rates.

5.2.1 Employee responses

The employee survey response rates are illustrated by Table 24m which demonstrates the baseline characteristics of the employees surveyed.

The age distribution of the respondents revealed that 5.5% of injured employees were under 25, the majority (60% of respondents) were between the ages of 25-45 years, 29% were between the ages of 46-64, and the remaining 5.5% of participants were over 65 years of age.

Participants were predominantly working in permanent or full-time positions (75.3%) compared with other agreements (24.7%). Injured workers were more likely to be on a fixed roster (73.6%) versus rotating rosters (26.4%). Overall, the tenure of employment for participants ranged from less than one year to 35 years. Thirty six percent of the respondents were employed for less than two years, 27% were employed between two and five years, and 14% were employed for between five and ten years. Eleven per cent of participants were employed between 10-15 years, and another 11% were employed for greater than 15 years.

Table 24: Overall Sample Demographics

Overall Sample Demographics (n=73)		**n (%)**	**Mean (St.Dev) Range**
Gender	**Male**	60 (82.2%)	
	Female	13 (17.8%)	
Age Category	**less than 25**	4 (5.5%)	
	25-45	44 (60.3%)	
	46-65	21 (28.8%)	
	65 +	4 (5.5%)	
Industry	**Mining and Gas**	25 (34.7%)	
	Civil services	29 (40.3%)	
	Hospitality & Health Care Services	9 (12.5%)	
	Clerical & Retail	9 (12.5%)	
Tenure		N/A	5.7 (7.5) 0.0-35.0
Length of Occupation		N/A	11.0 (11.9) 0.0-50.0
Employment Status	**Permanent, full time**	55 (75.3%)	
	Other	18 (24.7%)	
Work Roster	**Fixed Roster**	53 (73.6%)	
	Rotating Roster	19 (26.4%)	
Size of Organisation	**1-25**	23 (36.0%)	
	26 – 100	20 (31.3%)	
	101-500	9 (14.1%)	
	501-1000	12 (18.8%)	
	1001+	0 (0%)	
Insurer	**Insurer A**	17 (41.5%)	
	Insurer B	16 (39.0%)	
	Insurer C	3 (7.3%)	
	Insurer D	2 (4.9%)	
	Self-insured	3 (7.3%)	
Injury	**Torso**	16 (21.9%)	
	Head or Neck	5 (6.9%)	
	Lower Limb	16 (21.9%)	
	Upper Limb	36 (49.3%)	
Type of Injury	**SDC**	35 (49.3%)	
	LDC	36 (50.7%)	
Marital Status	**Single**	18 (24.7%)	
	Married	35 (47.9%)	
	Divorced	5 (6.9%)	
	Other	15 (20.6%)	

Injured workers seemed to work for smaller organisations with 36.0% of the sample employed by companies with 25 or less employees; 31.3% in a company with 26-100 employees; 14.1% in a company with 101-500 employees; 18.8% in a company with 501-1000 employees; and 0% in a company with more than 1001 employees.

Table 24 shows the stratification of injuries sustained by the respondents revealed that 49.3% of injuries were sustained to the upper limb, 21.9% to the lower limb, 21.9% to the torso region, and the remaining 6.9% were head and neck injuries. When categorising respondents as either a short duration claim (SDC) or long-duration claim (LDC). It was found approximately even representation across the groups. 49.3% of respondent cases were classified as SDCs and 50.7% being identified as LDCs depending on the number of days away from work due to injury or illness.

The majority (77%) of respondents were covered under WA Workers' Compensation legislation, 22% were covered under the Seafarers' Rehabilitation and Compensation Act, and the remaining 1% was covered by other jurisdictional legislators.

Participants were typically insured by either Insurer A (41.5%) or Insurer B (39.0%), with 7.3% insured by Insurer C, 4.9% insured by Insurer D, and 7.3% being self-insured.

5.2.2.1 Enabling the comparison of the SDC and LDC Employee Groups

The objective of the statistical analysis was to determine the prevailing characteristics and exposures experienced in the LDC outcome group. The following tables include the comparison results.

5.2.2.2 Injury Type

Table 25: Nature of injury between SDC and LDC employees

Injured Area	SDC (N=35)	LDC (N=36)	Chi-Square Test
Torso	7 (20.0%)	9 (25.0%)	3.745 (0.290)
Neck / Head	3 (8.6%)	2 (5.6%)	
Lower Limb	5 (14.3%)	11 (30.6%)	
Upper Limb	20 (57.1%)	14 (38.9%)	

An explanation for the differences between the SDC and LDC groups would be to suggest that the type of injuries sustained on the job were categorically different between groups. In Table 25, it is observed that the nature of injuries sustained by SDC and LDC employees, did not exhibit any statistically significant difference between the two groups. This lack of association was substantiated by the lack of statistical significance of the Pearson Chi-Square test score, 3.745 (p=0.290).

Proportionally, the Lower Limb and Upper Limb categories appeared to exhibit differences across SDC and LDC groups. These proportions were analysed with Z-test (where expected cell values were ≥10), however it was found that the Lower Limb proportions were statistically significant between SDC and LDC employees (p=0.101) at the 10% level of significance. However, neither the Lower Limb nor Upper Limb group (p=0.124) was statistically significant at the 5%. Despite the external validity of these findings being marred by small a sample size, the type of bodily injury was assumed to not pre-dispose an employee to favour sustaining either a SDC or LDC in the workplace.

In terms of Age groups, this research had a higher proportion of respondents in the 25 to 45 and 46-64 age groups categories. The age groups for is this research are demonstrated following in Figure 19.

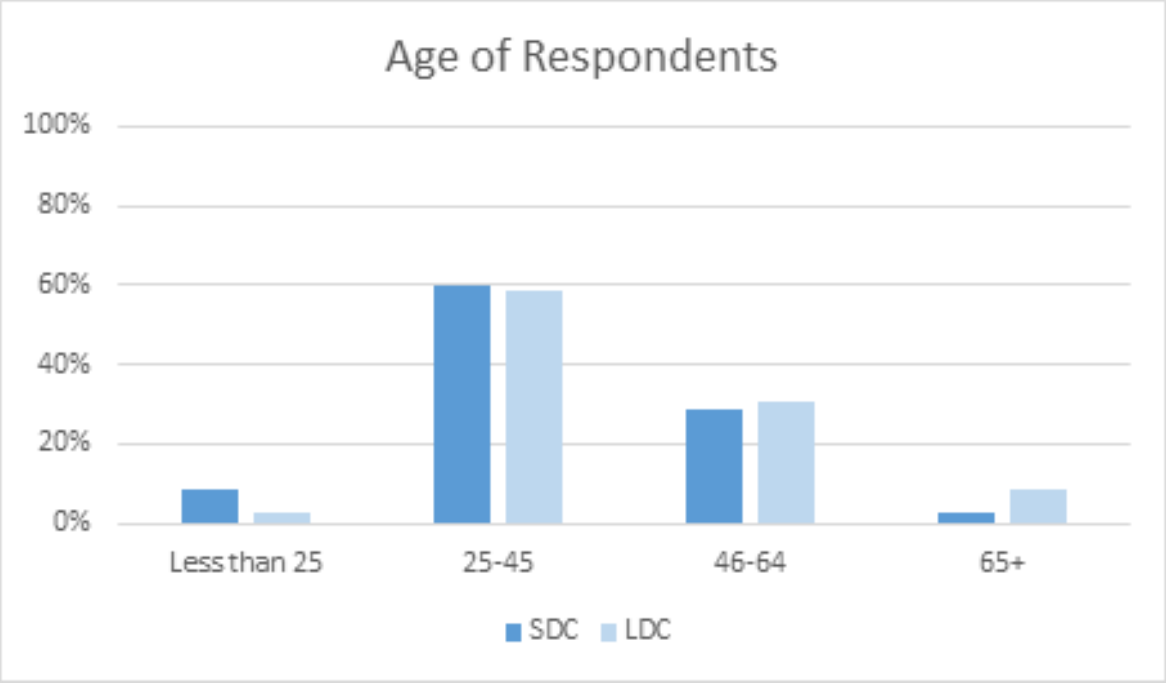


Figure 19: Ages of SDC and LDC respondents.

5.2.2.3 Gender

The responses for both employers and employees were analysed for the factors researched by SDC and LDC claims. Median statistics were used to analyse this information.

Table 26: Gender for SDC and LDC employees

Comparison of Sub-Sample Demographics		Injury Classification			
		SDC		LDC	
		n (%)	Median (IQR)	Count	Median (IQR)
Gender	Male	28 (80.0%)		30 (83.3%)	
	Female	7 (20.0%)		6 (16.7%)	

The majority of the respondents were male (82.2%), with the remaining 17.8% being female.

5.2.2.4 Age

Table 27 displays the analysis comparison between short and long-duration claims frequency when compared to the questionnaire respondents' age.

Table 27: Age for SDC and LDC employees

Comparison of Sub-Sample Demographics		Injury Classification			
		SDC		LDC	
		n (%)	Median (IQR)	Count	Median (IQR)
Age	Less than 25	3 (8.6%)		1 (2.8%)	
	25-45	21 (60.0%)		21 (58.3%)	
	46-64	10 (28.6%)		11 (30.6%)	
	65+	1 (2.9%)		3 (8.3%)	

The age categories exhibited the following breakdown across SDC and LDC groups. For the <25 years of age category, SDCs had 8.6% whereas LDCs had 2.8%; in the 25-45 years of age category SDCs had 60.0% whereas LDCs had 58.3% of their participants; the 46-64 age group presented as 28.6% of the SDC, & 30.6% of the LDC participants; and the over 65 years of age group had 2.9% of SDCs and 8.3% of LDCs. The differences in the type of injury were not associated with age category as determined at the 5% level of significance by Pearson Chi-Square test, p=0.565,. Nor where the ordinal age categories found to be correlated with the type of injury (SDC or LDC) when a Spearman's Correlation test was conducted (p=0.31).

5.2.3 Summary

The outcome of an SDC or LDC was primarily assessed with a Pearson Chi-Square Test. The SDC or LDC was tested against the following personal attributes (variables): it was found that the length of duration claim was independent of gender (p=0.72), age category (p=0.565), marital status (p=0.498), number of dependents (p=0.982), and whether or not a participant had dependents at all (0.801).

5.3. Sub-Sample Demographic Profile

Sub−sample demographics were compared work to identify if any of these factors significantly influenced an employee having a short or long-duration workers' compensation claim.

5.3.1 Sub-Sample Demographics

Sub−sample demographics in Table 28 analysed using Median statistics are tenure of employment by industry working in, insurer, marital status, number of dependents, birthplace, occupation, length of time employed, employment status and hours of work.

The sub-sample demographic information in Table 28 shows that males accounted for 80% of SDCs, and 83% of LDCs. This is consistent with State and national statistical data for workers' compensation claims (Workcover WA, 2012c, 2013).

Participants were mostly married (47.9%), as opposed to being single (24.7%), divorced (6.9%), or identifying themselves as participating in other forms of relationships (20.6%). Participants generally had no dependents (60.6%), with some having a single dependent (14.1%), 2 dependents (15.5%) or 3 dependents (9.9%) under their legal guardianship.

The workplace injuries were sustained across the following industries in this population; with 34.7% of injuries being sustained in the field of Mining, Oil & Gas, 40.3% sustained by employees in civil services, 12.5% sustained in hospitality & health care services, and 12.5% of injuries sustained in clerical and retail services.

Injured employees classified themselves as working in the following occupations. Forty one percent of respondents held occupations as labourers, manufacturers, security workers and truck drivers. Tradespersons account for 37% of respondents; the remaining 22% of respondents held clerical & administrative (9.6%), health care (2.7%), and other professional roles (9.6%).

Table 28: Sub-Sample Demographics.

Comparison of Sub-Sample Demographics		Injury Classification			
		SDC		LDC	
		n (%)	Median (IQR)	n (%)	Median (IQR)
Industry	Mining (tenure)	13 (37.1%)	2.0 (1.0-4.5)	11 (31.4%)	2.0 (2.0-10.0)
	Civil construction, manufacturing, auto, security, waste, agriculture (tenure)	12 (34.3%)	2.0 (1.0-6.0)	16 (45.7%)	1.6 (1.0-13.0)
	Cleaning hospitality disability and health (tenure)	5 (14.3%)	2.0 (1.0-4.5)	4 (11.4%)	1.0 (0.5-7.0)
	Clerical and retail (tenure)	5 (14.3%)	4.0 (3.0-5.0)	4 (11.4%)	3.0 (2.5-4.0)
No. of Dependents	0	20(57%)		22(61%)	
	1	5(14%)		5(14%)	
	2	6(17%)		5(14%)	
	3	3(9%)		3(8%)	
Occupation	Labourer, Manufacturing, Security, Truck driver	12 (34.9%)		18 (50.0%)	
	Tradesperson	13 (37.1%)		12 (33.3%)	
	Clerical, Administrative, Secretarial	4 (11.4%)		3 (8.3%)	
	Health Care Worker	2 (5.7%)		0 (0%)	
	Professional	4 (11.4%)		3 (8.3%)	
Length of Occupation			6.0 (3.0-18.0)		5.0 (2.0-15.0)

5.3.2 Birthplace

Table 29 identified that there was a difference between the number of people with SDC and LDC who were born in Australia as compared to people born overseas. Birthplace was identified in the literature review as a variable that was a potential cause of LDC outcomes so this information was further reviewed to consider country of origin.

Table 29: Respondents Birthplace counts for LDC vs SDCs.

Birthplace	SDC	LDC
Australia	23 (59%)	16 (41%)
New Zealand	6 (75%)	2 (25%)
UK & Ireland	3 (30%)	7 (70%)
Europe	0 (0%)	3 (100%)
Asia	1 (17%)	5 (83%)
Africa	2 (66%)	1 (33%)

Participants had a diverse range of nationalities having been born all over the world. However, after grouping these nationalities, categories were produced with very small counts. Because of this, it was determined that it would not be appropriate to analyse these findings, as the results would not be valid. However, despite this, interesting observations can be made by observing Table 29.

Superficially, birthplace appeared to be a factor associated with a participant being categorised as either an SDC or a LDC. It appeared that Australian born employees were less likely to be LDC claimants 16 (41%) versus 23 (59%) SDC injuries. Of the 10 participants from the United Kingdom (including Ireland) 7 participants (70%) had LDCs compared to 3 participants (30%) had a SDC. In comparison other nationalities were proportionally more likely to become and LDC than a SDC, with the exception of employees born in Africa and New Zealand.

5.3.3 Claim Duration

Table 30 provides the results of the correlation tests used to assess the potential association between select demographic variables and the duration of injury claim.

Table 30: Exposures correlated with Injury Duration Claim type.

Correlation by Type of Injury		**Spearman's**
Gender	**Correlation Coefficient**	-0.04
	Sig. (2-tailed)	0.72
	N	71
Age Category	**Correlation Coefficient**	0.122
	Sig. (2-tailed)	.312
	N	71
Tenure	**Correlation Coefficient**	-0.013
	Sig. (2-tailed)	0.916
	N	70
Length of Occupation	**Correlation Coefficient**	-0.060
	Sig. (2-tailed)	0.620
	N	70

Spearman's Correlation was conducted on gender, age category, tenure and length of occupation against the binary variable, Type of Injury, to determine the potential for particular exposures to influence the Type of Injury. This testing of correlation on the selected variables found no statistically significant variables.

5.4 Employees' Health Characteristics across SDC and LDC Responders.

5.4.1 Employee's self-perceived health

To determine which health-related variables were correlated with the type of injury sustained at work: an employee's self-perceived health rating was cross-tabulated (Table 31).

Table 31: Respondent Perception of General Health.

Perception of Overall Health		Type of Injury		Chi-Square Test
		SDC	LDC	
		n (%)	n (%)	p-value
Excellent	**Yes**	30 (85.7%)	24 (66.7%)	0.060^{P}
	No	5 (14.3%)	12 (33.3%)	
Fair	**Yes**	9 (25.7%)	11 (31.4%)	0.597^{P}
	No	26 (74.3%)	24 (68.6%)	
Poor	**Yes**	2 (5.9%)	1 (2.8%)	0.897^{F}
	No	32 (94.1%)	35 (0.0%)	
P = Pearson Chi-Square test F = Fisher's exact test (when expected values of cell <5).				

A Chi-square test was conducted on the Type of Injury (SDC and LDC) and an employee's self-perceived health rating. Type of Injury (SDC or LDC) was found to be independent of an employee's perception that their health was fairly good (p=0.597), or if an employee rated their health as poor (p=0.522). However, type of injury was not independent for a self-perceived rating of excellent health at the 10% level of significance (p=0.06).

A participant perceiving themselves to have excellent health was dependent of whether an employee might be more likely to have an SDC (85.7%) rather than an LDC (66.7%) at the 10% level of significance, p=0.06. Spearman's correlation was conducted on the information collected on the self-perceived health rating and Type

of Injury. It was found that at the 10% level of significance that self-perceived excellent health had a weak-positive relationship with the type of injury (LDC) (0.223, p=0.061); a self-perceived health score of excellent had a strong negative correlation with a fairly good (-0.716, p<0.01) self-perceived health score and a weak negative self-perceived health score of poor (-0.361, p<0.01).

5.4.2 Smoking Habits

Table 32: Smoking status cross-tabulation.

Smoker	**Type of Injury**		**Pearson X-Square**
	SDC	**LDC**	
	n (%)	**n (%)**	p-value
Yes	13 (37%)	11 (31%)	0.621
No	22 (63%)	25 (69%)	

Smoking habits were assessed to determine the influence on the type of injury (SDC or LDC) sustained in the workplace (Table 32). A Pearson Chi-square test determined that smoking was independent from the type of injury experienced by the participants in this sample (p=0.621). No statistically significant correlation existed between smoking habits and type of duration claim (Spearman's correlation test: -0.012, p=0.919).

5.4.3 Drinking Habits

Table 33: Alcohol intake cross-tabulation.

Drinks Alcohol	**Type of Injury**		**Pearson X-Square**
	SDC	**LDC**	
	n (%)	**n (%)**	p-value
Yes	31 (88.5%)	29 (80.6%)	0.514
No	4 (11.4%)	7 (19.4%)	

Drinking habits were assessed across the type of injury sustained in the workplace to determine what influence, if any, alcohol consumption might have on the duration of injury claims (Table 33). A Pearson Chi-square test determined that the type of injury was independent of all alcohol consumption categories at the 5% level of significance, p=0.827; independent of whether the participant consumed any alcohol at all (p=0.514). Spearman's correlation was conducted on the "drinks alcohol" variable, however it was found that drinking habits were not associated with the type of duration claim (p=0.531).

5.4.4 Work Related Health Issues.

Table 34 describes respondents' feelings about how their work has affected them in relation to mental and physical health during the last 12 months. Respondents' perceptions are analysed using Chi-Square to determine if there is any significant difference between the perceived work related mental and physical health of respondents with short and long-duration workers' compensation claims.

Table 34: Conditions Experienced in the Past 12 Months.

		Type of Injury		**Chi-Square**
		SDC	**LDC**	
		n (%)	**n (%)**	p-value
Muscles Aches	**Yes**	20 (57.2%)	23 (63.9%)	0.561[a]
	No	15 (42.9%)	13 (36.1%)	
Tires Quickly	**Yes**	8 (22.9%)	6 (17.1%)	0.550[a]
	No	27 (77.1%)	29 (82.9%)	
Jobs affects Health	**Yes**	12 (34.3%)	13 (38.2%)	0.733[a]
	No	23 (65.7%)	21 (61.8%)	
Tension at Work	**Yes**	11 (31.4%)	12 (34.3%)	0.799[a]
	No	24 (68.6%)	23 (65.7%)	
Nervous because of work	**Yes**	9 (25.7%)	7 (20.0%)	0.569[a]
	No	26 (74.3%)	28 (80.0%)	
Different job Health	**Yes**	11 (32.6%)	13 (38.2%)	0.875[a]
	No	21 (61.7%)	19 (55.9%)	
Job keeps me awake at night	**Yes**	12 (34.3%)	12 (34.3%)	1.000[a]
	No	23 (65.7%)	23 (65.7%)	

Thinking about work at home	**Yes**	10 (28.6%)	12 (34.3%)	0.607[a]
	No	25 (71.4%)	23 (65.7%)	
Back Pain	**Yes**	12 (34.3%)	17 (47.2%)	0.268[a]
	No	23 (65.7%)	19 (52.8%)	
Back injury at Work	**Yes**	5 (14.3%)	9 (25%)	0.257[a]
	No	30 (85.7%)	27 (75%)	
Other Sprains and Strains	**Yes**	18 (51.4%)	22 (61.1%)	0.411[a]
	No	17 (48.6%)	14 (38.9%)	
Headaches	**Yes**	8 (22.9%)	13 (36.1%)	0.221[a]
	No	27 (77.1%)	23 (63.9%)	
Cold or Flu	**Yes**	15 (42.9%)	16 (45.7%)	0.810[a]
	No	20 (57.1%)	19 (54.3%)	
High Blood Pressure	**Yes**	5 (14.3%)	3 (8.3%)	0.428[a]
	no	30 (85.7%)	33 (91.6%)	
Weight Loss	**Yes**	1 (2.9%)	4 (11.1%)	0.174[a]
	No	34 (97.1%)	32 (88.9%)	
Cardiac Problems	**Yes**	1 (2.6%)	1 (2.8%)	0.984[a,b]
	No	34 (97.1%)	35 (97.2%)	
Weight Gain	**Yes**	6 (17.1%)	10 (27.8%)	0.284[a]
	No	29 (82.9%)	26 (72.2%)	
Rash	**Yes**	1 (2.9%)	1 (2.8%)	0.984[a,b]
	No	34 (97.1%)	35 (97.2%)	
Mood Changes	**Yes**	10 (28.6%)	15 (41.7%)	0.248[a]
	No	25 (71.4%)	21 (58.3%)	
Arthritis	**Yes**	5 (14.3%)	6 (16.7%)	0.782[a]
	No	30 (85.7%)	30 (83.3%)	
Gastro-intestinal Disorders	**Yes**	5 (14.3%)	4 (11.4%)	0.721[a]
	No	30 (85.7%)	31 (88.6%)	

a. More than 20% of cells have expected cell counts less than 5.
b. The minimum expected cell count in this sub-table is less than one. Chi-square results may be invalid.

It was found that LDC claimants were proportionally more likely, than SDC claimants, to experience: muscles aches (63.9% vs 57.2%), to think that their job affects their health (38.2% vs 34.3%), to think that having a different job would improve their health (38.2% vs 32.6%), to think about work at home (34.3% vs 28.6%), to experience back pain (47.2% vs 34.3%), to have suffered a back injury at work (25% vs 14.3%), to experience other sprains and strains at work (61.1% vs 51.4%), to suffer from headaches (36.1% vs 22.9%), to experience weight loss

(11.1% vs 2.9%), to experience weight gain (27.8% vs 17.1%), and to experience mood swings (41.7% vs 28.6%). However, using a Z-test of proportions determined that none of these differences in proportions were statistically significant at either the 5% or 10% level.

Chi-square analysis was conducted to determine if work-related health issues, both mental and physical ailments, had an effect on the type of injury claim. Pearson Chi-square tests were conducted on the conditions experienced in the past 12 months that had values in the contingency table >5. For cells with values <5, a Fisher's exact test was used to assess the independence of the variables. Chi-square analysis found no statistically significant findings for any work-related health issues.

The questions in Table 34 were found to have good consistency with a Cronbach's Alpha score of 0.78, across 21 items.

5.4.5 Wellbeing

Spearman's correlation was also conducted on the work-related health conditions experienced in the previous 12 months to determine the correlation of concomitant health issues on the Claim Duration Type and other work-related health issues.

Correlation within general wellbeing variables and the collaborative impact of the perception of work included: "feeling nervous as a result of my job" was positively correlated with "tiring quickly" (0.413, p=0.000), and "working under a great deal of tension" (0.494, p=0.000). The "perception that having a different job would probably improve personal health", was positively correlated with "their job directly affecting their health" (0.439, p=0.000). Responders "experiencing problems that kept them awake at night" found moderate positive correlation "with feeling nervous because of their job" (0.402, p=0.000). Employees feeling that "they often take their job home with them in the senses that I think about it" was positively correlated with "working under a great deal of tension" (0.516, p=0.000). "Mood changes in the last

12 months" was positively correlated with an employee "tiring quickly" (0.471, p=0.000), "my jobs directly affects my health" (0.431, p=0.000), "working under a great deal of tension" (0.463, p=0.000), "I often take my job home with me in the senses that I think about it when doing other things" (0.426, p=0.000), and "headaches at work in the last 12 months" (0.434, p=0.000).

Physical health issues in the prior 12 months to experiencing an injury claim included: "suffering a back injury at work in the last 12 months" was positively correlated with "back pain related to work activities in the last 12 months" (0.583, p=0.000). "Unintentional weight loss in the last 12 months" was positively correlated with "suffering a back injury sustained at work in the last 12 months" (0.419, p=0.000). "Cardiac problems in the last 12 months" was positively correlated with "high blood pressure in the last 12 months" (0.478, p=0.000). "Gastro-intestinal disorders in the last 12 months" was correlated with "tiring quickly" (0.407, p=0.000). Physical health issues affect employees feeling of wellbeing.

5.4.6 General Wellbeing

The employee's work-related mental health was assessed using questions from the General Health Questionnaire that were included in the survey (Table 35).

Table 35: General Mental Health.

		Type of Injury		Pearson X-Square
		SDC	LDC	
		n (%)	n (%)	p-value
Most people have days when they feel pretty "blue" or depressed during most of the day. How often does this happen to you?	**1-2 times a week**	9 (26.5%)	13 (36.1%)	0.05*
	1-2 time a month	7 (20.6%)	14 (38.9%)	
	Rarely	18 (52.9%)	9 (25.0%)	
Most people have days when they feel tired or worn out during a good part of the day? How often does this happen to you?	**>2 times a week**	9 (25.7%)	13 (37.1%)	0.41[b]
	Once a week	10 (28.6%)	9 (25.7%)	
	1-2 times a Month	3 (8.6%)	4 (11.4%)	
	Once a Month	3 (8.6%)	5 (14.3%)	
	<1 once a month	10 (28.6%)	4 (11.4%)	
How often do you feel nervous, tense or edgy while on the job?	**>50% of the time**	3 (8.6%)	2 (5.6%)	0.041*,b
	~50% of the time	1 (2.8%)	2 (5.6%)	
	~25% of the time	4 (11.4%)	2 (5.6%)	
	~10% of the time	4 (11.4%)	7 (19.4%)	
	~5% of the time	3 (8.6%)	13 (36.1%)	
	Rarely or never	20 (57.1%)	10 (27.8%)	
Indigestion	**Yes**	8 (22.9%)	6 (16.7%)	0.512[b]
	No	27 (77.1%)	30 (83.3%)	
Feeling Weak	**Yes**	6 (17.1%)	10 (27.8%)	0.284[b]
	No	29 (82.9%)	26 (72.2%)	
Trouble Sleeping	**Yes**	12 (34.3%)	14 (38.9%)	0.687[b]
	No	23 (65.7%)	22 (61.1%)	
Irritated or annoyed	**Yes**	17 (48.6%)	22 (61.1%)	0.288[b]
	No	18 (51.4%)	14 (38.9%)	
Tire quickly	**Yes**	8 (22.9%)	6 (17.1%)	0.550[b]
	No	27 (77.1%)	29 (82.9%)	
Job affecting health	**Yes**	12 (34.3%)	13 (38.2%)	0.733[b]
	No	23 (65.7%)	21 (61.8%)	

Tension at Work	**Yes**	11 (31.4%)	12 (34.3%)	0.799[b]
	No	24 (68.6%)	23 (65.7%)	
Nervous due to Job	**Yes**	9 (25.7%)	7 (20%)	0.569[b]
	No	26 (74.3%)	28 (80%)	
My health would be better in a different job.	**Yes**	11 (32.4%)	13 (38.2%)	0.875[b]
	No	21 (61.8%)	19 (55.9%)	
	Don't know	2 (5.9%)	2 (5.9%)	
Awake at Night	**Yes**	12 (34.3%)	12 (34.3%)	1.000[b]
	No	23 (65.7%)	23 (65.7%)	
Thinking about work at home	**Yes**	10 (28.6%)	12 (34.3%)	0.607[b]
	No	25 (71.4%)	23 (65.7%)	
b. More than 20% of cells have expected cell counts less than 5. Chi-square results may be invalid.				

Feeling depressed 1-2 times per week (36.1% vs 26.5%) or 1-2 times per month (38.9% vs 20.6%), was more common to the LDC employees relative to SDC employees. Rarely feeling depressed was more common in the SDC group compared to the LDC group (52.9% vs 25.0%). A Pearson Chi-square analysis of the distribution of depressive attitudes across the Type of Injury claim were found to be dependent at the 5% level of significance, p=0.05.

Feeling tired on the job more than twice a week was more prominent in the LDC rather than SDC group, 37.1% vs 25.7%. However, this correlation was not statistically significant for either Z-test or Pearson Chi-Square analysis. A Z-test of proportions for Feeling Tired, less than once a month, was found to be difference across LDC and SDC groups at the 10% level of significance, p=0.064.

The six ordinal categories related to feelings of nervousness, tension or edginess on the job (rarely or never, ~5% of the time, ~10% of the time, ~25% of the time, ~50% of the time, and >50% of the time) across the type of injury resulted in the cell counts being too small to analyse reliably with Pearson Chi-square analysis. Therefore the categories related to feelings of nervousness, tension or edginess on the job as either 'rarely or never' and 'experienced feelings' were combined. A Fisher's exact test was conducted on these manipulated counts and found that

experiencing feelings of nervousness, tension or edginess on the job were dependent of the type of injury sustained at work, at the 5% level of statistical significance, p=0.0167.

Concomitant work-related wellbeing and health issues that appeared, albeit superficially, to be more common in the LDC claimants included: feeling weak (27.8% vs 17.1%), trouble sleeping (38.9% vs 34.3%), feeling irritated or annoyed (61.1% vs 48.6%), job affecting health (38.2% vs 34.3%), tension at work (34.3% vs 31.4%), feelings that their health would be better in another job (38.2% vs 32.4%), and thinking about work at home (34.3% vs 28.6%). However, both Z-test of proportions and chi-square analysis determined that the differences in proportions between SDC and LDC claimants were not statistically significant at the 5% or 10% level.

The questions in Table 35 were found to have good consistency with a Cronbach's Alpha score of 0.802, across 13 items.

5.5 Organisational Variables

The organisational variables of industry and occupation roster were analysed using Pearson X-Square to identify if there were differences due to these factors between short and long-duration claim respondents.

Table 36: Industry and Occupation of Participants.

		Type of Injury		Pearson X-Square
		SDC	LDC	
		n (%)	n (%)	p-value
Industry	Mining & Gas	13 (37.1%)	11 (31.4%)	0.811[a]
	Civil construction, manufacturing auto, security, waste, agriculture	12 (34.3%)	16 (45.7%)	
	Cleaning, hospitality disability and health	5 (14.3%)	4 (11.4%)	
	Clerical and retail	5 (14.3%)	4 (11.4%)	
Occupation	Labourer / Manufacturing / Security / Truck driver	12 (34.3%)	18 (50%)	0.476[a,b]
	Tradesperson	13 (37.1%)	12 (33.3%)	
	Clerical / Admin / secretarial	4 (11.4%)	3 (8.3%)	
	Health Care Worker	2 (5.7%)	0 (0.0%)	
	Professional	4 (11.4%)	3 (8.3%)	

a. More than 20% of cells have expected cell counts less than 5.
b. The minimum expected cell count is less than one. Chi-square results may be invalid.

Table 36 displays the organisational exposures across the type of work injury claim. The type of injury sustained at work was found not to be dependent on the type of industry of the employee. Civil services seemed to be proportionally more common in the LDC cohort, however a Z-test of proportions determined that this was not statistically significant. Furthermore, a Pearson Chi-square test, p=0.811, determined industry and type of injury to be independent.

In regards to occupational roles, LDC employees seemed to be proportionally more likely to be labourers, factory workers, security guards, waste workers or agricultural workers, compared with SDC claimants (50% vs 34.3%). SDC claimants seemed to be tradespersons (37.1% vs 33.3%), clerical, administrative or secretarial staff (11.4% vs 8.3%), health care workers (5.7% vs 0.0%), or professional workers compared to LDC employees (11.4% vs 8.3%). However, these proportions were not statistically significant when a Z-test of proportions was used. A Pearson Chi-square

test was conducted and found that type of injury sustained was not dependent on occupation at the 5% or 10% level of significance (p=0.05), although some cells had counts <5 therefore the chi-square results potentially invalid and could be unreliable. Correlation statistics were not applied to these nominal variables.

5.5.1 Employment Status and Work Roster

The organisational variables of employment status and work roster were analysed using the Chi-Square Test to identify if there were differences due to these factors between short and long-duration claim respondents.

Table 37: Participant Employment Status and Work Roster.

		Type of Injury		**Chi-Square Test**
		SDC	**LDC**	
		n (%)	**n (%)**	p-value
Employment Status	Permanent, full time	31 (88.6%)	22 (61.1%)	0.013
	Other	4 (11.4%)	14 (38.9%)	
Work Roster	Fixed Roster	25 (71.4%)	28 (80.0%)	0.5781
	Rotating Roster	10 (28.6%)	7 (20.0%)	

In Table 37, there were clear differences in the proportions of injury type (SDC and LDC groups) for employment status. Responders with permanent/full time contracts were more likely to experience and SDC rather than LDC (88.6% vs 61.1%, Z-test of proportions, p=0.007) and responders on other forms of contracts were proportionally more likely to become an LDC claimant rather than a SDC claimant (38.9% vs 11.4%, Z-test of proportions, p=0.007). This was also confirmed by a Fisher's exact test for independence, p=0.013. Inferring that the contract type, hence employment status, was dependent of the type of injury sustained in the workplace. Work roster was proportionally similar across LDC and SDC groups, and a Fisher's exact test found that work roster was independent of the type of injury sustained at work, p=0.5781.

5.5.2 Work's perceived effect on participant health

Participant's perception of how their work affects their health were similar across all questions for both LDC and SDC. See table 38.

Table 38: Participant perception of their job's effect on their health.

Participant perception of their job's effect on their mental & physical health.		**Type of Injury**		**Pearson X-Square**
		SDC	**LDC**	
		n (%)	**n (%)**	**p-value**
My job directly affects my health.	Yes	12 (34.3%)	13 (38.2%)	0.7733[a]
	No	23 (65.7%)	21 (61.8%)	
I work under a great deal of tension.	Yes	11 (31.4%)	12 (34.3%)	0.799[a]
	No	24 (68.6%)	23 (65.7%)	
I have felt fidgety or nervous as a result of my job.	Yes	9 (25.7%)	7 (20%)	0.569[a]
	No	26 (74.3%)	28 (80%)	
If I had a different job my health would improve.	Yes	11 (32.4%)	13 (38.2%)	0.875[a]
	No	21 (61.8%)	19 (55.9%)	
	Don't know	2 (5.8%)	2 (5.8%)	
Problems relating to my job have kept me awake at night.	Yes	12 (34.3%)	12 (34.3%)	1.000[a]
	No	23 (65.7%)	23 (65.7%)	
I think about my job when doing other things not related to my job.	Yes	10 (28.6%)	12 (34.3%)	0.607[a]
	No	25 (71.4%)	23 (65.7%)	
a. More than 20% of cells have expected cell counts less than 5. Chi-square results may be invalid.				

The Z- test of proportions showed no statistically significant difference between LDC or SDC responses. Nor did Chi-square analysis determine any associations between the attitudes regarding work's effect on their health and type and type of duration claim.

The questions in table 38 were found to have good internal consistency with a Cronbach's Alpha score of 0.751 across 6 items.

5.5.3 Involvement of Safe Work Processes

The respondents' reported work practices and processes were analysed using the Chi-Square Test to identify if there were differences due to these factors between short and long-duration claim respondents.

Table 39: Participation in Work Safety Processes.

Participating in Work Safety Practices		**Type of Injury**		**Chi-Square Test**
		SDC	**LDC**	
		n (%)	**n (%)**	p-value
My position is demanding (physically and/or mentally).	Yes	32 (91.4%)	33 (91.7%)	0.971[a]
	No	3 (8.6%)	3 (8.3%)	
Before commencing employment I was asked about previous injuries and how they would affect my ability to work	Yes	15 (44.1%)	16 (44.4%)	0.978
	No	19 (55.9%)	20 (55.6%)	
Before commencing employment I was provided assistance and education in relation to previous injuries	Yes	8 (29.6%)	10 (32.3%)	0.376[a,b]
	No	19 (70.4%)	19 (61.3%)	
	Don't know	0 (0.0%)	2 (6.5%)	
Before commencing employment I attended a pre-employment medical	Yes	24 (70.6%)	17 (48.6%)	0.063
	No	10 (29.4%)	18 (51.4%)	
When I first commenced employment I was provided with a formal induction	Yes	30 (88.2%)	25 (69.4%)	0.055
	No	4 (11.8%)	11 (30.6%)	
At my induction I received instruction regarding the work environment and safe work processes	Yes	29 (82.9%)	25 (73.5%)	0.614[a,b]
	No	5 (14.3%)	8 (23.5%)	
	Don't know	1 (2.9%)	1 (2.9%)	
At my induction I received formal training on the safe use of company equipment	Yes	23 (67.6%)	22 (64.7%)	0.600[a,b]
	No	11 (32.4%)	11 (32.4%)	
	Don't know	0 (0.0%)	1 (2.9%)	

a. More than 20% of cells have expected cell counts less than 5.
b. The minimum expected cell count is less than one. Chi-square results may be invalid.

An employee's participation in safe work processes and practices was quantified in Table 39. LDC and SDC participants were similar, with no statistically significant difference, across the following work safety areas: "my position is demanding (physically and/or mentally)", "before commencing employment I was asked about previous injuries and how they would affect my ability to work", "before commencing employment I was provided assistance and education in relation to previous injuries", "at my induction I received instruction regarding the work environment and safe work processes", and "at my induction I received formal training on the safe use of company equipment". These comparisons were tested with both Z-test of proportions and Chi-square analysis.

The areas of work safety processes that were different between the LDC and SDC groups were: "Before commencing employment I attended a pre-employment medical", and "When I first commenced employment I was provided with a formal induction". A Chi-square test determined that having a pre-employment medical was dependent from the type of Injury claim sustained ($p=0.063$) at the 10% level of significance. Chi-square analysis inferred that a participant having a formal induction at the start of employment was dependent from the type of injury claim sustained ($p=0.055$) at the 10% level of significance.

The questions in Table 39 were found to have good internal consistency with a Cronbach's Alpha score of 0.733, across 7 items.

5.6 Psychosocial Variables

The following tables contain the results of statistical analysis that was conducted to determine which psychosocial variables significantly affect employees who have a short or long-duration claim.

5.6.1 Factors that affect Work Satisfaction

The first factor analysed for significance using the Pearson Chi-Square Tests was respondents' satisfaction with their working conditions.

Table 40: Factors that Affect Work Satisfaction

Work Satisfaction		**Type of Injury**		
		Sdc	**LDC**	**Pearson Chi-Square Tests**
		n (%)	**n (%)**	**p-value**
Satisfaction with Working Hours	Dissatisfied	5 (14.3%)	5 (13.9%)	1.00
	Neutral	6 (17.1%)	6 (16.7%)	
	Satisfied	24 (68.6%)	25 (69.4%)	
Satisfaction with Work Team	Dissatisfied	6 (17.1%)	7 (19.4%)	0.79
	Neutral	5 (14.3%)	7 (19.4%)	
	Satisfied	24 (68.6%)	22 (61.1%)	
Satisfaction with duties performed	Dissatisfied	2 (5.7%)	4 (11.1%)	0.69[a]
	Neutral	6 (17.1%)	5 (13.9%)	
	Satisfied	27 (77.1%)	27 (75.0%)	
Satisfaction with work life balance	Dissatisfied	8 (22.9%)	7 (19.4%)	0.77
	Neutral	9 (25.7%)	12 (33.3%)	
	Satisfied	18 (51.4%)	17 (47.2%)	
Satisfaction with job's relevance to career ambitions	Dissatisfied	6 (17.1%)	6 (16.7%)	0.99
	Neutral	10 (28.6%)	10 (27.8%)	
	Satisfied	19 (54.3%)	20 (55.6%)	
Satisfaction that the job gives you the opportunity to do what you are best at.	Dissatisfied	6 (17.1%)	10 (27.8%)	0.56
	Neutral	6 (17.1%)	5 (13.9%)	
	Satisfied	23 (65.7%)	21 (58.3%)	
Satisfaction of job expectations	Dissatisfied	5 (14.3%)	7 (19.4%)	0.82
	Neutral	8 (22.9%)	7 (19.4%)	
	Satisfied	22 (62.9%)	22 (61.1%)	
Satisfaction of HR Appraisal process	Dissatisfied	6 (17.1%)	9 (25.0%)	0.52
	Neutral	16 (45.7%)	12 (33.3%)	
	Satisfied	13 (37.1%)	15 (41.7%)	

a. More than 20% of cells have expected cell counts less than 5.

Table 40 displays the factors that affect work satisfaction across Type of Injury groups. LDC and SDC participants were similar, with no statistically significantly difference, across the following factors that affect work satisfaction: “working hours”, “work team”, “duties performed”, “work life balance”, “job’s relevance to career ambitions”, “that the job gives you the opportunity to do what you are best at”, “job expectations”, and “HR appraisal process”. These comparisons were tested with both Z-test of proportions and Chi-square analysis. The questions in Table 40 were found to have good internal consistency with a Cronbach’s Alpha score of 0.897, across 8 items.

5.6.2 Attitudes to Work Relationships

Table 41 displays the attitudes to work relations across injury claim type.

Table 41: Statements relating to attitudes to work relationships.

		Type of Injury		
		SDC	**LDC**	**Pearson Chi-Square Tests**
		n (%)	**n (%)**	**p-value**
My working relationship with my supervisor is effective	**Dissatisfied**	8 (23.0%)	5 (13.9%)	0.58
	Neutral	5 (14.3%)	7 (19.4%)	
	Satisfied	22 (62.9%)	24 (66.7%)	
My supervisor recognises my potential	**Dissatisfied**	4 (11.4%)	6 (16.7%)	0.33
	Neutral	11 (31.4%)	6 (16.7%)	
	Satisfied	20 (57.1%)	24 (66.7%)	
My supervisor understands my problems and needs	**Dissatisfied**	10 (28.6%)	6 (16.7%)	0.37
	Neutral	6 (17.1%)	10 (27.8%)	
	Satisfied	19 (54.3%)	20 (55.6%)	
Other employees make mistakes and I do not	**Dissatisfied**	13 (37.1%)	12 (34.3%)	0.97a
	Neutral	18 (51.4%)	19 (54.3%)	
	Satisfied	4 (11.4%)	4 (11.4%)	
a. More than 20% of cells have expected cell counts less than 5.				

Attitudes to work relationships were similar across SDC and LDC groups for the following factors: “my working relationship with my supervisor is effective”, “my supervisor recognises my potential”, “my supervisor understands my problems and needs”, and “other employees make mistakes and I do not”. These comparisons were tested with both Z-test of proportions and Chi-square analysis.

The questions in Table 41 were found to have good internal consistency with a Cronbach’s Alpha score of 0.731, across 4 items.

5.6.3 Attitudes and being a successful worker.

Table 42 displays statements relating to attitudes to being a successful worker across injury claim type.

Table 42: Statements relating to attitudes to being a successful worker.

Statements relating to attitudes to being a successful worker		Type of Injury		Chi-Square Test
		SDC	LDC	
		n (%)	n (%)	p-value
I feel successful at work when I do my best.	**Disagree**	6 (17.1%)	1 (2.8%)	0.042[a,b]
	Agree	29 (82.9%)	35 (97.2%)	
I learn something that makes me want to continue to learn about it	**Disagree**	1 (2.9%)	1 (2.8%)	0.583[a,b]
	Neutral	7 (20.0%)	4 (11.1%)	
	Agree	27 (77.1%)	31 (86.1%)	
Others cannot do as well as me	**Disagree**	10 (29.4%)	12 (33.3%)	0.898
	Neutral	15 (44.1%)	16 (44.4%)	
	Agree	9 (26.5%)	8 (22.2%)	
I am clearly the most productive employee	**Disagree**	11 (32.4%)	11 (30.6%)	0.333
	Neutral	15 (44.1%)	11 (30.6%)	
	Agree	8 (23.5%)	14 (38.9%)	
I have influence over how I do my work	**Disagree**	2 (5.7%)	4 (11.1%)	0.619[a]
	Neutral	8 (22.9%)	6 (16.7%)	
	Agree	25 (71.4%)	26 (72.2%)	
I follow company policy and procedures	**Disagree**	0 (0.0%)	1 (2.8%)	0.461[a,b]
	Neutral	5 (14.3%)	3 (8.3%)	
	Agree	30 (85.7%)	32 (88.9%)	
I have influence over the pace of my work	**Disagree**	2 (5.7%)	3 (8.3%)	0.760[a]
	Neutral	6 (17.1%)	8 (22.2%)	
	Agree	27 (77.1%)	25 (69.4%)	

Management are trustworthy	**Disagree**	7 (20%)	6 (16.7%)	0.840
	Neutral	6 (17.1%)	8 (22.2%)	
	Agree	22 (62.9%)	22 (61.1%)	
Workplace management and employees get on well together	**Disagree**	5 (14.2%)	6 (16.7%)	0.924
	Neutral	9 (25.7%)	8 (22.2%)	
	Agree	21 (60.0%)	22 (61.1%)	

The following statements relating to attitudes to being a successful worker that were similar across SDC and LDC groups were: “I learn something that makes me want to continue to learn about it”, “others cannot do as well as me”, “I am clearly the most productive employee”, “I have influence over how I do my work”, “I follow company policy and procedures”, “I have influence over the pace of my work”, “management are trustworthy”, and “workplace management and employees get on well together”. These comparisons were tested with both Z-test of proportions and Chi-square analysis.

The following statement relating to attitudes to being a successful worker that was different across SDC and LDC groups is: “I feel successful at work when I do my best”. Fisher’s exact test for contingency table determined at the 5% level of significance that the Type of Injury sustained was associated with whether or staff had agreed with the attitude (p=0.042): “I feel successful at work when I do my best”.

The questions in Table 42 were found to have acceptable internal consistency with a Cronbach’s Alpha score of 0.651, across 9 items.

5.6.4 Factors that affect voluntary turnover

Table 43 displays the factors that affect voluntary turnover across Type of Injury.

Table 43: Factors that affect voluntary turnover.

		Type of Injury		Chi-Square Test
		SDC	LDC	
		n (%)	n (%)	p-value
I am treated with respect by managers	**Disagree**	6 (17.6%)	7 (19.4%)	0.76
	Neutral	7 (20.6%)	5 (13.9%)	
	Agree	21 (61.8%)	24 (66.7%)	
My performance is fairly assessed	**Disagree**	5 (14.7%)	5 (13.9%)	0.76
	Neutral	9 (26.5%)	7 (19.4%)	
	Agree	20 (58.8%)	24 (66.7%)	
I am normally consulted in decision making processes when those decisions directly affect me	**Disagree**	34 (100.0%)	35 (100.0%)	N/A
This is a good place to work	**Disagree**	6 (17.6%)	3 (8.3%)	0.41[a]
	Neutral	7 (20.6%)	6 (16.7%)	
	Agree	21 (61.8%)	27 (75.0%)	
Management communicates to me all the information I need to perform my duties	**Disagree**	6 (18.6%)	6 (17.1%)	0.51
	Neutral	11 (34.4%)	8 (22.9%)	
	Agree	15 (46.9%)	21 (60.0%)	
Stress (would be a factor in me leaving my job)	**Disagree**	24 (70.6%)	30 (85.7%)	0.13
	Neutral	10 (29.4%)	5 (14.3%)	
A better position/offer (would be a factor in me leaving my job)	**Disagree**	34 (100.0%)	35 (100.0%)	N/A
Impact on person and work time (would be a factor in me leaving my job)	**Disagree**	6 (17.6%)	5 (14.3%)	0.773[a,b]
	Neutral	12 (35.3%)	13 (37.1%)	
	Agree	16 (47.1%)	16 (45.7%)	

The factors that affect voluntary turnover that were similar for both SDC and LDC participants were: “I am treated with respect by managers”, “my performance is fairly assessed”, “I am normally consulted in decision making processes when those decisions directly affect me”, “this is a good place to work”, “management communicates to me all the information I need to perform my duties”, “stress”, “a

better position/offer", and "impact on person and work time". These comparisons were tested with both Z-test of proportions and Chi-square analysis at the 5% level of significance and show no dissimilarity across SDC or LDC groups for factors that affect voluntary turnover.

The questions in Table 43 were found to have good internal consistency with a Cronbach's Alpha score of 0.743, across 8 items.

5.6.5 Psychological Variables

Table 44 displays the psychological variables across Type of Injury.

The psychological variables that were similar for both SDC and LDC participants were: "The job gives you the opportunity to do what you are best at", "I am normally consulted in decision making processes when those decisions directly affect me" "this is a good place to work", "management communicates to me all the information I need to perform my duties", "stress", "a better position/offer", "I am clearly the most productive employee", "other employees make mistakes and I do not", and "others cannot do as well as me". These comparisons were tested with both Z-test of proportions and Chi-square analysis at the 5% level of significance and show no dissimilarity across SDC or LDC groups for factors that affect voluntary turnover.

The psychological variable that was associated with a difference in the Type of Injury classification was how the participant rated whether they "I feel successful at work when I do my best". SDC claimants (17.1%) were more likely than the LDC claimants (2.8%) to "disagree" with the statement "I feel successful at work when I do my best" – this association was confirmed with a Pearson Chi-square test ($p=0.042$) – however this result is marred by the two cells containing expected values <5 which compromises the result.

Table 44: Psychological Variables Statistics.

		Type of Injury		
		SDC	**LDC**	**Chi-Square Test**
		n (%)	**n (%)**	**p-value**
Satisfaction that the job gives you the opportunity to do what you are best at.	**Disagree**	6 (17.1%)	10 (27.8%)	0.558
	Neutral	6 (17.1%)	5 (13.9%)	
	Agree	23 (65.7%)	21 (58.3%)	
I feel successful at work when I do my best	**Disagree**	6 (17.1%)	1 (2.8%)	0.042[b]
	Neutral	29 (82.9%)	35 (97.2%)	
I am normally consulted in decision making processes when those decisions directly affect me	**Disagree**	34 (100.0%)	35 (100.0%)	N/A
This is a good place to work	**Disagree**	6 (17.6%)	3 (8.3%)	0.412[b]
	Neutral	7 (20.6%)	6 (16.7%)	
	Agree	21 (61.8%)	27 (75.0%)	
Management communicates to me all the information I need to perform my duties	**Disagree**	6 (18.8%)	6 (17.1%)	0.511
	Neutral	11 (34.4%)	8 (22.9%)	
	Agree	15 (46.9%)	21 (60.0%)	
Stress (would be a factor in me leaving my job)	**Disagree**	24 (70.6%)	30 (85.8%)	0.128
	Neutral	10 (29.4%)	5 (14.3%)	
A better position/offer (would be a factor in me leaving my job)	**Disagree**	34 (100.0%)	35 (100.0%)	N/A
I am clearly the most productive employee	**Disagree**	11 (32.4%)	11 (30.6%)	0.333
	Neutral	15 (44.1%)	11 (30.6%)	
	Agree	8 (23.5%)	14 (38.9%)	
Other employees make mistakes and I do not	**Disagree**	13 (37.1%)	12 (34.3%)	0.967[b]
	Neutral	18 (51.4%)	19 (54.3%)	
	Agree	4 (11.4%)	4 (11.4%)	
Others cannot do as well as me	**Disagree**	10 (29.4%)	12 (33.3%)	0.898
	Neutral	15 (44.1%)	16 (44.4%)	
	Agree	9 (26.4%)	8 (22.2%)	

The questions in Table 44 were found to have poor internal consistency with a Cronbach's Alpha score of 0.547, across 10 items.

5.7 Binary Logistic Regression

Logistic regression was used to determine the influence that the myriad of variables could have on the outcome of a LDC injury. Hampered by a small sample size, self-select variables that appeared to be proportionally related (Z-test or proportions, Chi-square analysis), and/or seemingly correlated (Spearman's correlation test) with the LDC outcome were selected.

Table 45 displays the factors used in the first iteration of the binary logistic regression. The analysis included the following individual, organisational and psychosocial exposures: Self-perceived good or excellent health; headaches in the last 12 months; mood changes in the last 12 months; how often the employee felt tense, nervousness and edgy on the job; I get irritated or annoyed over the way things are going; employment status with the company; whether the employee attended a pre-employment medical examination; whether the company held formal inductions for outside contractors; having an effective relationship with their supervisor; having a supervisor that recognises your potential; being clearly the most productive employee; workplace management & employees get on well together; whether the company was good to work for; management communicated well; and whether a better position/offer would be a factor in the employee leaving their job.

Table 45: 1st Iteration of the Binary Logistic Regression.

	B	S.E.	Wald	df	Sig.	Exp(B)
I consider I have good or excellent health?	-1.964	1.037	3.587	1	.058	.140
Headaches at work? (Last 12 months)	-.733	1.004	.533	1	.465	.481
Mood Changes (Last 12 months)	1.899	1.060	3.209	1	.073	6.680
How often do you feel nervous, tense or edgy while on the job?	.249	.388	.412	1	.521	1.282
I get irritated or annoyed over the way things are going?	1.190	.928	1.644	1	.200	3.286
Employment Status	-2.633	1.009	6.807	1	.009	.072
I attended a pre-employment medical.	-.586	.858	.466	1	.495	.557
Provided with a formal induction	-1.881	1.270	2.196	1	.138	.152
My working relationship with my supervisor is effective.	-.008	.752	.000	1	.991	.992
My supervisor recognises my potential	.417	.596	.490	1	.484	1.518
I am clearly the most productive employee	.563	.390	2.084	1	.149	1.757
Workplace management and employees get on well together	1.286	.563	5.213	1	.022	3.620
This is a good place to work	.787	.445	3.121	1	.077	2.196
Management communicates to me all the information I need to perform my duties	-.888	.444	3.993	1	.046	.412
A better position/offer (would be a factor in me leaving my job)	1.938	.986	3.863	1	.049	6.946
Constant	5.311	2.203	5.810	1	.016	202.457

Table 46 displays the final iteration of the Binary Logistic Regression assessing the impact that certain variables had on the LDC output. The variables included in the final iteration of the regression included; self-perceived excellent health; employment contract status; whether outside contractors were formally inducted; workplace management and employees get on well together; and whether a better position/offer (would be a factor in me leaving my job). This initial model possessed a pseudo r-square value of 0.675 (Nagelkerke R Square) and an overall Classification Table score of 81.7%. Naturally, a higher pseudo r-square and classification table score in the model with all the inputs included is expected

Table 46: Final iteration of the binary logistic regression.

	B	**S.E.**	**Wald**	**Df**	**Sig.**	**Exp(B)**	**95% C.I. for EXP(B)**	
							Lower	**Upper**
I consider I have good or excellent health?	-1.430	0.716	3.990	1	0.04	0.239	0.059	0.973
Employment Status	-2.127	0.736	8.355	1	<0.01	0.119	0.028	0.504
Provided with a formal induction	-1.757	0.795	4.880	1	0.03	0.173	0.036	0.820
Workplace management and employees get on well together	0.713	0.340	4.400	1	0.04	2.041	1.048	3.975
A better position/offer (would be a factor in me leaving my job)	1.533	0.749	4.193	1	0.04	4.631	1.068	20.081
Constant	5.589	1.608	12.080	1	<0.01	267.589		

The odds ratios measure the impact of exposure between the Type of Injury classifications. Self-perceived excellent health had a protective effect on LDC outcome with an OR 0.239 (95%CI 0.059, 0.0973), (p=0.046) this signifying that individuals with self-perceived excellent health were less likely to be a LDC claimant. Employment contract status, i.e. having a full time contract also had a protective effect on LDC outcome with an OR 0.119 (95%CI 0.028, 0.504) for a

long-duration outcome (p=0.004). A company having a formal induction process for outside contractors had a protective effect on the LDC outcome with an OR0.173 (95%CI 0.036, 0.820), a formal induction for outside contractors seemed to reduce likelihood of an employee sustaining a long-duration claim (p=0.027). Whether the workplace management and employees got along on well together had an increased likelihood, with an OR2.041 (95%CI 1.048, 3.975), of presenting as factor in a long-duration claim injury (p=0.036). Finally, having a better position/offer (would be a factor in me leaving my job) was a prevailing exposure in the LDC outcomes OR4.631 (95%CI 1.068, 20.081) compared to the short duration claim outcome (p=0.041). The pseudo r-square value (Nagelkerke R-square) was 0.374 and the overall Classification table score was 75%. Indicating that the inputs in the final model had moderate predictive ability (37%) with reasonable accuracy (75%) in predicting the likelihood of an employee sustaining a long-duration claim injury.

5.8 Employer Questionnaire – Descriptive Statistical Analysis

This section displays the results of the statistical analysis of the answers provided on their questionnaire by employers.

5.8.1 Distribution, Jurisdiction and Injury details

Table 47: Distribution, Jurisdiction and Injury details of Employer responses.

	SDC (N=35)	**LDC (N=36)**	**Person Chi- Square (P)**
Legislation			3.465 (0.063)
WA Worker's	100%	88.1%	
SRCA	0.00	11.9%	
Injury			6.061 (0.109)
Torso	22.3%	25.7%	
Neck / Head	14.7%	4.8%	
Lower Limb	14.7%	35.7%	
Upper Limb	48.3%	31.8%	

Table 47 shows the employer responses for SDCs were relevant to the WA Workers' Compensation System. For LDCs, 88.1% were relevant to the WA Workers' Compensation [WA Act] system with the remainder being claims received in the Seafarer's Rehabilitation and Compensation Act of 1996 [SRCA]. For SRCA all employer responses were LDCs (11.9%). This is consistent with the industry given that the AMSA medical standards and the inability to provided alternate or restricted duties to ill or injured seafarer's (Commonwealth of Australia, 2008). A Pearson Chi-square test for association determined the legislation (processing) and Type of Injury was dependent at the 5% significance level. Spearman's Correlation was conducted and found that Legislation was a weak (0.224) factor in the type of Injury sustained in the workplace at the 10% level of significance, p=0.064.

Of the employer responses, the SDC cases had a higher proportion of Upper Limb injuries (48%) in comparison to LDCs (31%). Whereas LDCs (35.7%) had a higher proportion of torso injuries, including lower back and abdomen, in comparison to SDCs (22.8%). A Pearson's Chi-square test assessed the association between the different kinds of injuries sustained and the type of injury claim (LDC and SDC). At the 10% level of significance the kinds of injuries sustained by participants were not dependent (associated) on the LDC or SDC outcome.

5.8.2 Career Characteristics

The characteristics of the manager or supervisor's position and employment were analysed to establish if tenure, experience or sex was a factor that contributed to type of injury.

Table 48: Career Characteristics.

	SDC (N= 27)	**LDC(N= 41)**	**Person Chi- Square (P)**
Tenure	3.22 (3.34)	3.11 (3.14)	n/a
Time in Current Job	5 (5.00)	6 (8.00)	n/a
Sex of Supervisor			
Male	77.8%	80.5%	0.073 (0.787)
Female	22.2%	19.5%	

The results revealed that tenure of the supervisors for SDC claimants was 3.22 years in comparison to supervisors of LDC claimants being 3.11 years. The supervisor's time in their position was similar with SDC being 5 years and LDC 8 years. The sex of the supervisor showed that more males were in the roles than females, however no differences were notes in the responses.

Analysis of the career characteristics for the employers showed no significant difference at the 5% level for the "tenure" (independent t-test), "time in current job" (independent t-test) or the "sex of supervisor" (Pearson Chi-square test). A Spearman's correlation test was conducted for the type of injury and tenure, there was no correlation between the two variables (-0.14, p=0.909).

5.8.3 Number of Sick Days

The respondents' number of days taken as sick leave was analysed to identify if there were differences due to these factors between short and long-duration claim respondents. Table 48 displays the number of sick days taken by SDC and LDC claimants.

Table 49: Number of Days taken as Sick Leave.

	SDC (N= 27)	**LDC (N= 41)**
No. Days Sick	Count 27	Count 42
	Mean 3	Mean 20
	Standard Deviation 4	Standard Deviation 5

LDCs had a statistically significantly higher mean number of sick days (20 days) in comparison to SDCs (3 days), at the 5% level of significance ($p<0.01$). Spearman's correlation was conducted on the details associated with the injury. The number of days sick leave in the last 12 months was not correlated with the type of injury (-0.16, p=0.98). However, the number of annual leave days taken in the last 12 months had weak negative correlation with the Type of Injury Claim at the 10% level of significance (-0.204, p=0.098).

5.9 Organisational Variables

Table 50 displays the organisational factors across Type of Injury claim. The "location", "occupation", and "HR Personnel" had no association with the Type of Injury claim; confirmed by Pearson Chi-square test with no statistically significant associations at the 5% level of significance.

Table 50: Demographic Organisational Variable Statistics.

VARIABLE	SDC (N= 27)	LDC (N= 41)	Person Chi-Square (P)
Location			0.001 (0.970)
Regional	63.0%	63.4%	
Metropolitan	37.0%	36.6%	
Occupation			5.692 (0.223)
Labourer/ Manufacturer/ Security/ Truck Driver	51.9%	57.1%	
Tradesperson	37.0%	21.4%	
Clerical / Admin	11.1%	7.1%	
Other	0%	14.3%	
HR Personnel			2.361 (0.124)
Yes	81.5%	64.3%	
No	18.5%	35.7%	

Analysis of the employer questionnaires showed that organisations that did not have HR personnel were moderately more likely to have a LDC (35.7%) in comparison to SDC (18.5%). Spearman correlation was conducted on the Location and HR variables across the type of injury sustained at work. Occupation is a nominal variable hence was left out of the correlation analysis. The type of injury was not statistically significantly correlated with the Location (0.017, p=0.970), or the presence of HR Personnel (0.185, p=0.128), there was moderate positive correlation between the Location of the business and whether the company had HR Personnel (0.378), p=0.001.

In Table 51, employer's responses were assessed with Pearson Chi-square test for association and determined that the following organisational exposures were statistically similar for the SDC and LDC claims at the 5% level of significance: "mission statement", "induction", "contractors", "contractors inducted", "ongoing training", "pre-employment medical", and "job description provided".

Table 51: Organisational Variables Statistics.

VARIABLE	SDC (N= 27)	LDC (N= 41)	Person Chi-Square (P)
Does your company have a mission statement?			0.632 (0.427)
Yes	52.00%	61.90%	
No	48.00%	38.10%	
Does your company have formal induction-training?			0.146 (0.702)
Yes	88.8%	85.7%	
No	11.2%	14.3%	
Does your company engage contractors?			0.002 (0.966)
Yes	51.8%	52.3%	
No	48.2%	47.7%	
Where the engaged contractors inducted?			1.993 (0.158)
Yes	59.0%	77.78%	
No	41.0%	22.22%	
Ongoing Training and Education was provided?			0.002 (0.967)
Yes	92.5%	92.8%	
No	7.5%	7.2%	
Pre-Employment Medical Conducted			0.390 (0.532)
Yes	59.2%	66.7%	
No	40.8%	33.3%	
Job Description Provided to Doctor			0.731 (0.393)
Yes	55.6%	65.8%	
No	44.4%	34.2%	

An assessment of the correlation between organisational variables was conducted to determine the most influential variables that could be used in the first iteration of the logistic regression model. Spearman's correlation testing found that a company having a mission statement was positively correlated (0.376, p=0.002) with a company having a formal induction process.

Whether the employer engaged contractors was weakly correlated (0.232, p=0.055) with a formal induction training program. Whether contractors were inducted was correlated with a company having a mission statement (0.248, p=0.093), a formal induction program (0.485, p=0.000), and whether contractors were engaged to begin with (0.952, 0.000).

Ongoing training provided was weakly (positively) correlated with a mission statement (0.220, p=0.74) at the 10% level of significance.

Having a medical conducted prior to the employee commencing work was positively correlated with a company having a mission statement (0.598, p=0.00), a company having a formal induction process (0.514, p=0.00), and having an induction for engaged contractors (0.499, p=0.00).

A doctor provided with a detailed job description including the physical demands of the job – was positively correlated with the company having a mission statement (0.338, p=0.005), satisfaction with formal performance management processes (0.219, p=0.077), and having a medical conducted prior to the employee commencing employment (0.559, p=0.00).

The questions in Table 51 were found to have good internal consistency with a Cronbach's Alpha score of 0.772, across 7 items.

5.10 Psychosocial Variables

Table 52 displays the psychosocial factors for the employer responses. Pearson Chi-square test found no association in the following psycho-social variables and the Type of Injury claim at the 5% level of significance: "Effective Relationship", "Fail to perform duties", "Attempted Return to Work", "No Days for Return to Work", "Job dissatisfaction", "Review Fitness Work", and "Conflict". Associations were found between the following psycho-social variables and the Type of Injury at the

5% level of significance: “Completion of duties”, “full responsibilities”, “provide solutions”, “help problem solve”, “motivated to learn”, “work does best”, “follow instructions”, “respected”, and “performance management”.

Table 52: Psychosocial Variables Statistics

Psycho-social Variables		SDC (N= 27)	LDC (N=41)	Chi-Square test (P-value)
The worker always completes duties specified in their job description	Disagree	6 (21.4%)	21 (51.2%)	6.199 (0.013)
	Agree	21 (78.6%)	20 (48.8%)	
The worker fulfils all responsibilities required by their job.	Disagree	5 (17.3%)	21 (50%)	6.845 (0.009)
	Agree	22 (82.6%)	20(50%)	
The worker generates original solutions to problems.	Disagree	8 (31%)	201 (50%)	9.377 (0.052)
	Agree	19 (69%)	20 (50%)	
Worker personally inclined to help solve problems	Disagree	6 (23.5%)	22(54.5%)	6.784 (0.009)
	Agree	21 (76.5%)	19 (45.5%)	
Effective Working Relationship with Employee	Disagree	7 (25%)	18 (44.6%)	2.288 (0.130)
	Agree	20 (75%)	23 (55.4%)	
Worker is motivated to learn new skills	Disagree	6 (21.4%)	21 (51.2%)	6.199 (0.013)
	Agree	21 (78.6%)	20 (48.8%)	
Worker always does their best	Disagree	4 (15.8%)	18 (42.8%)	10.281 (0.036)
	Agree	23 (84.2%)	23 (57.2%)	
Worker often fails to perform essential duties	Disagree	12 (43.4%)	23 (56.5%)	2.317 (0.678)
	Agree	15 (56.6%)	18 (43.5%)	
Worker Follows Instructions and directions well from manager and supervisors.	Disagree	6 (23.4%)	21 (50%)	5.048 (0.025)
	Agree	21 (76.6%)	20 (50%)	
Worker is well respected	Disagree	7 (25%)	201 (50%)	4.484 (0.034)
	Agree	20 (75%)	20 (50%)	

Worker has attempted a Return To Work on alternative or restricted duties	Yes	24 (88.9%)	29 (71.4%)	2.945 (0.086)
	No	3 (11.1%)	12 (28.6%)	
Number of Days for Return To Work	Less than 10 days	10 (36%)	10 (25.6%)	0.783 (0.376)
	More than 10 days	17 (64%)	31 (74.4%)	
Evident Prior to Employee's injury: Job Dissatisfaction	Yes	8 (31%)	24 (59.3%)	0.439 (0.508)
	No	19 (69%)	17 (40.7%)	
Evident Prior to Employee's injury: Performance Management	Yes	5 (20%)	20 (48.8%)	5.567 (0.016)
	No	22 (80%)	21 (51.2%)	
Evident Prior to Employee's injury: Review Fitness Work	Yes	6 (23.1%)	7 (17.1%)	0.367 (0.545)
	No	21 (76.9%)	34 (82.9%)	
Evident Prior to Employee's injury: Conflict	Yes	8 (30.8%)	21 (50%)	2.428 (0.119)
	No	19 (69.2%)	20 (50%)	

The questions in Table 52 were found to have good internal consistency with a Cronbach's Alpha score of 0.869, across 16 items.

When further analysed with the Spearman's Correlation test, psychosocial variables exhibited a high level of correlation with the Type of Injury. Type of injury was negatively correlated with the employers views of the worker always completing the duties specified in their job descriptions (-0.337, p=0.005), the worker fulfilling all responsibilities required by their job (-0.338, p=0.005), the worker generating original solutions to problems (-0.299, p=0.13), the worker being personally inclined to help an employer with a problem (-0.272, p=0.026), a worker being motivated to learn new skills (-0.262, p=0.030), a worker that always does their best (-0.228, p=0.060), a worker who always follows instructions and directions well from superiors (-0.292, p=0.016), a work that is well respected by their team (-0.286, p=0.018), an employee that had attempted a return to work on alternative or restricted duties (0.207,p= 0.089), and employee's prior performance management (-0.286, p=0.018).

Spearman's Correlation test between the psychosocial variables to determine those with the most influence to include in the employer's logistic regression analysis. It was found that: worker's fulfilling all responsibilities required by their job was strongly correlated with a worker always completing the duties specified in their job description (0.809, p=0.000). A worker generating original solutions to problems was strongly correlated with a worker always completing the duties specified in their job description (0.661, p=0.000), and the worker fulfilling all responsibilities require by their job (0.756, p=0.000). An effective employee-employer relationship was positively correlated with a worker always completing duties specified in their job description (0.661, p=0.000), the worker fulfilling all the responsibilities required by their job (0.622, p=0.000), the worker generating original solutions to the problem (0584, p=0.000).

Whether the worker was personally inclined to help solve problems at work was correlated with: the worker always completing the duties specified in their job description (0.660, p=0.000); the worker fulfils all responsibilities required by their job (0.639, p=0.000); the worker generates original solutions to problems (0.692, p=0.000); and, my working relationship with my employee is effective (0.730, p=0.000).

The worker is motivated to learn new skills was correlated with the worker always completing the duties specified in their job description (0.688, p=0.000), the worker fulfils all responsibilities required by their job (0.638, p=0.000), the worker generates original solutions to problems (0.679, p=0.000), my working relationship with my employee is effective (0.659, p=0.000), and the worker would be personally included to help me solve problems at work (0.730, p=0.000).

The worker always does their best was correlated with the worker always completing the duties specified in their job description (0.767, p=0.000), the worker fulfils all responsibilities required by their job (0.742, p=0.000), the worker generates original solutions to problems (0.777, p=0.000), my working relationship with my employee

is effective (0.701, p=0.000), and the worker would be personally included to help me solve problems at work (0.764, p=0.000), and the worker is motivated to learn new skills (0.682, p=0.000).

The worker often fails to perform essential duties was negatively correlated with the worker always completing the duties specified in their job description (-0.563, p=0.000), the worker fulfils all responsibilities required by their job (-0.516, p=0.000), the worker generates original solutions to problems (-0.657, p=0.000), my working relationship with my employee is effective (-0.653, p=0.000), and the worker would be personally included to help me solve problems at work (-0.630, p=0.000), the worker is motivated to learn new skills (-0.502, p=0.000), and the worker always does their best (-0.650,p=0.000).

The worker always follows instructions and directions well from superiors was strongly positively correlated with the worker always completing the duties specified in their job description (0.778, p=0.000), the worker fulfils all responsibilities required by their job (0.807, p=0.000), the worker generates original solutions to problems (0.710, p=0.000), my working relationship with my employee is effective (0.685, p=0.000), and the worker would be personally included to help me solve problems at work (0.766, p=0.000), and the worker is motivated to learn new skills (0.641, p=0.000), the worker always does their best (0.819, p=0.000), and the worker often fails to perform essential duties (-0.617,p=0.000).

The worker is well respected by their team was positively correlated with the worker always completing the duties specified in their job description (0.750, p=0.000), the worker fulfils all responsibilities required by their job (0.771, p=0.000), the worker generates original solutions to problems (0.743, p=0.000), my working relationship with my employee is effective (0.661, p=0.000), and the worker would be personally included to help me solve problems at work (0.702, p=0.000), and the worker is motivated to learn new skills (0.723, p=0.000), the worker always does their best (0.817, p=0.000), the worker often fails to perform essential duties (-0.680,p=0.000)

and the worker always follows instructions and direction well from managers and supervisors (0.860, p=0.000).

Has/had the employee attempted a return to work on alternative or restricted duties was weakly negatively correlated with the worker fulfils all responsibilities required by their job (-0.232, p=0.055), the worker generates original solutions to problems (-0.207, p=0.090), my working relationship with my employee is effective (-0.287, p=0.019), and the worker would be personally included to help me solve problems at work (-0.340, p=0.005), and the worker is motivated to learn new skills (-0.279, p=0.020), the worker always does their best (-0.251, p=0.038), the worker often fails to perform essential duties (-0.300,p=0.013) and the worker always follows instructions and direction well from managers and supervisors (-0.356, p=0.003).

Did the return to work continue for less than 10 days was weakly positively correlated with the worker fulfilling all responsibilities required by their job (0.237, p=0.060) at the 10% level of significance.

Evident prior to employee's injury: Job dissatisfaction was weakly correlated with the worker always completing the duties specified in their job description (0.318, p=0.009), the worker fulfils all responsibilities required by their job (0.336, p=0.005), the worker generates original solutions to problems (0.246, p=0.045), my working relationship with my employee is effective (0.307, p=0.012), and the worker would be personally included to help me solve problems at work (0.247, p=0.046), and the worker is motivated to learn new skills (0.401, p=0.001), the worker always follows instructions and direction well from managers and supervisors (0.271, p=0.027), the worker is well respected by their team (0.282, p=0.022).

Evident prior to employee's injury: Performance management was positively correlated with the worker always completing the duties specified in their job description (0.583, p=0.000), the worker fulfils all responsibilities required by their

job (0.643, p=0.000), the worker generates original solutions to problems (0.532, p=0.000), my working relationship with my employee is effective (0.457, p=0.000), and the worker would be personally included to help me solve problems at work (0.438, p=0.000), and the worker is motivated to learn new skills (0.422, p=0.000), the worker always does their best (0.485, p=0.000), the worker often fails to perform essential duties (-0.406,p=0.001) and the worker always follows instructions and direction well from managers and supervisors (0.625, p=0.000), the worker is well respected by their team (0.591, 0.000) and Evident prior to employee's injury: Job dissatisfaction (0.578, p=0.000).

Evident prior to employee's injury: Reviewing the fitness to perform the work was correlated with the worker fulfilling all responsibilities required by their job (0.297, p=0.015), the worker generates original solutions to problems (0.213, p=0.083), the worker is well respected by their team (0.233, 0.060) and Evident prior to employee's injury: Job dissatisfaction (0.260, p=0.035) and Evident prior to employee's injury: Performance Management (0.342, p=0.005).

Evident prior to employee's injury: Problems or conflict with another employee(s) or supervisor was correlated with the worker always completing the duties specified in their job description (0.564, p=0.000), the worker fulfils all responsibilities required by their job (0.560, p=0.000), the worker generates original solutions to problems (0.599, p=0.000), my working relationship with my employee is effective (0.532, p=0.000), and the worker would be personally included to help me solve problems at work (0.518, p=0.000), and the worker is motivated to learn new skills (0.572, p=0.000), the worker always does their best (0.500, p=0.000), the worker often fails to perform essential duties (-0.617,p=0.000) and the worker always follows instructions and direction well from managers and supervisors (0.541, p=0.000), the worker is well respected by their team (0.657, p=0.000), negatively correlated with whether an employee attempted a return to work on alternative or restricted duties (-0.258, p=0.033), Evident prior to employee's injury: Job dissatisfaction (0.485, p=0.000), Evident prior to employee's injury: Performance Management (0.453,

p=0.000), and Evident prior to employee's injury: Reviewing fitness to perform the work(0.257, p=0.36).

5.11 Employer Views about Employees in relation to Long-duration Claims.

Table 52 displays the results of the psychosocial variables. The Type of Injury (LDC) was inversely correlated with all "Employer Views of their Employees" variables when using spearman's correlation test. Further analysis using spearman's correlation test revealed that the type of injury was inversely correlated with the worker always completes the duties (-0.337, p=0.005); the worker fulfils all responsibilities required by their job (-0.338, p=0.005); the worker generates original solutions to problems (-0.299, p=0.013); the worker always does their best (-0.228, p=0.060); the worker is motivated to learn new skills (-0.262, p=0.030); the worker always follows instructions & directions from superiors (-0.292, p=0.016); and, the worker is well respected by their team (-0.286, p=0.018).

5.12 Employer Univariate and Multivariable Data Analysis

Binary Logistic Regression was used for the univariate analysis of the Employer variables to determine the influence of the variable exposure on the outcome of LDC with odds ratios. Table 58 in Appendix 8 displays the first iteration of the binary logistic regression model for the Employer Responses. The first model contained the following variables: "Legislation", "HR Personnel", "Number of days annual leave", "contractors", induction", "pre-employment medical", "job description provided", "completion of duties", "fulfil responsibilities", follow instructions", "provided solutions", "work does best", and "fails to perform". This initial model was poor at identifying influential variables for the Long-duration Claim outcome due to statistically insignificant odds ratios at the 5% level of significance. The final iteration of the binary logistic regression is shown in Table 53. The first iteration of the model had a pseudo r-square value (Nagelkerke R-square) of 0.623 and a Classification Table score of 81.6%, these high scores reflect the predictive ability of including all predictors, despite the invalidity of the model's construction.

Table 53: Binary Logistic Regression (Final Iteration) Employer Variables.

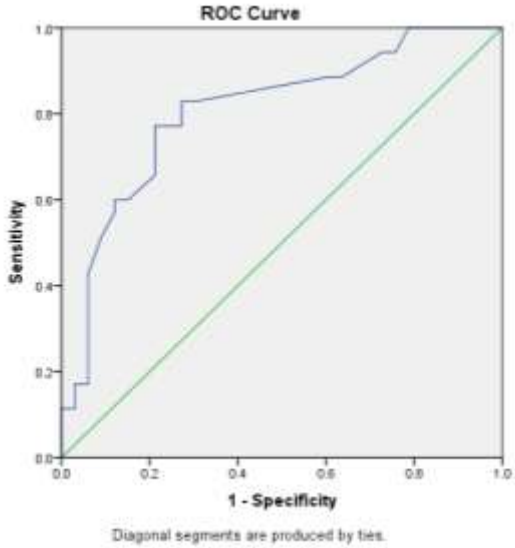
	B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
HR Personnel	-1.245	0.705	3.118	1	0.077	0.288	0.072	1.147
Job description provided	1.172	0.684	2.939	1	0.086	3.228	0.845	12.329
Completion of Duties	-1.026	0.341	9.070	1	0.003	0.358	0.184	0.699
Constant	1.201	0.713	2.835	1	0.092	3.322		

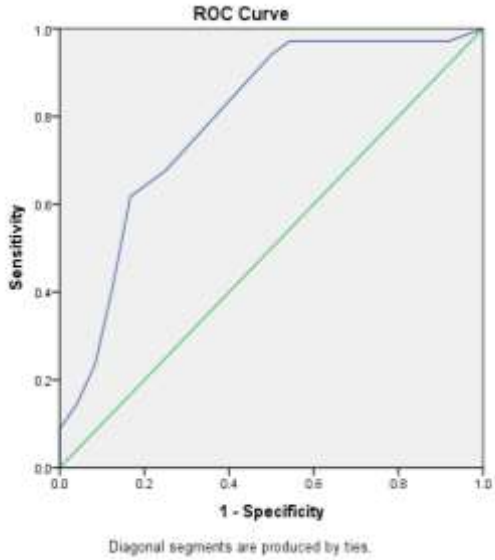
The variables included for analysis in the final regression model included: “HR Personnel”, “Job description provided”, and “completion of duties”. The results of the logistic regression determined that an employer deemed having “HR Personnel” had a potentially protective effect on the likelihood of a LDC injury with an OR0.29 (0.07, 1.15) but it was not statistically significant at the 5% level, p=0.08. Whether the job description was provided to employees was thought to have a potentially compounding effect on Long-duration Claims with an OR3.23 (0.85, 12.33) at the 5% level of significance, p=0.09. The employer deemed the completion of duties as having a protective effect on Long-duration Claims with an OR 0.39 (0.18, 0.70) at the 5% level of significance, p=0.003. The final model had a pseudo r-square value (Nagelkerke R-square) of 0.316 and a Classification Table score of 75.9%, Indicating that the inputs in the final model had moderate predictive ability (32%) with reasonable accuracy (76%) in predicting employer factors, such as, HR Personnel, provision of a job description and completion of duties, would contribute to a long-duration claim injury.

5.13 Receiver Operator Characteristic Analysis

Receiver Operator Characteristic (ROC) curves were calculated from the predictive values outputs of the final binary logistic regression. This analysis showed the Area under the Curve (AUC) and the associated 95% confidence intervals for both the employee and employer models were strong in their predictive ability on determining LDC outcomes.

(1) Employee Model **(2) Employer Model.**





Model	**Area under ROC Curve**
Employee model	0.807 (0.702 – 0.913)
Employer model	0.790 (0.666 – 0.913)

Figure 20: ROC curve for the two models for predicting LDCs.

A simple comparison of the AUCs for the Employee and Employer Models in Figure 20 shows that there is no statistically significant difference in the models in terms of their predictive ability of the LDC outcome, noting however that the underlying variables were independent for employees and employers.

The Employee model has a higher percentage of area under ROC curve and therefore is a better model of prediction of LDCs, in comparison to the Employer Model, although this difference is not statistically significant. Both ROC curves perform equally well at predicting the LDC outcome for the respective variables.

5.14 Summary

Data Analysis was conducted on the 71 employee questionnaires and 68 employer questionnaires on individual factors (including demographic and health information), organisational and psychosocial factors to determine what variables are predictors for long-duration workers' compensation claims. The level of significance was determined to be 0.05 for all variables in this research.

5.14.1 Employee Responses

Demographic Variables

Males account for 80% and females 20% for SDCs and 83% for males and 17% for females for LDCs. The majority of respondents (60%) were between the ages 25 to 45. Participants were predominantly permanent or full time (75.3%) and the remaining (24.7%) other than permanent or full time. Forty nine per cent (49.3%) of the respondents were SDCs and 50.7% were LDCs. The majority of respondents (77%) were covered by the Western Australian jurisdiction, 22% under the Seafarer's Rehabilitation and Compensation Act of 1996, with 1% being unknown or other.

Superficially, birthplace appeared to be a factor associated with a participant being categorised as either an SDC or a LDC. It appeared that Australian born employees were proportionally less likely to experience LDC injuries compared to SDC injuries. In comparison, other nationalities were proportionally more likely to become and LDC than a SDC, with the exception of employees born in Africa and New Zealand.

Health Questionnaire

Respondents perceiving themselves as having excellent health were dependent on whether an employee might be likely to have an SDC (85.7%) rather than an LDC (66.7%) at the 10% level of significance (p=0.06). It was found that LDC respondents were proportionally more likely to experience muscle aches (63.7 vs

57.2%), to think that their job affect their health (38.2 vs 34.3%), to think that having a different job would improve their health (38.2 vs 32.6), to have suffered a back pain (47.2 vs 34.3%), to have suffered a back injury at work (61.1 vs 51.4%), to have suffered headaches (36.1 vs 22.9%), to have experienced weight loss (11.1 vs 2.9%), to have experienced weight gain (27.8 vs 17.1%), and to experience mood swings (41.7 vs 28.6%). However, upon conducting Z-test of proportions and chi-square association test determined none of the variables to be statistically significant.

Analysis of the employee's work-related health and wellbeing revealed that feeling depressed 1-2 times per week (36.1% vs 26.5%) or 1-2 times per month (38.9% vs 20.6%), was more common to the LDC employees relative to SDC employees. Rarely feeling depressed was more common in the SDC group compared to the LDC group (52.9% vs 25.0%). A Pearson Chi-square analysis of the distribution of depressive attitudes across the Type of Injury claim were found to be dependent at the 5% level of significance, p=0.05.

Employee's reporting a feeling of tiredness on the job more than twice a week were more prominent in the LDC compared to SDC group, (37.1% vs 25.7%), despite this correlation not being statistically significant for either Z-test or Pearson Chi-Square analysis. A Z-test of proportions for Feeling Tired, less than once a month, was found to be difference across LDC and SDC groups at the 10% level of significance, p=0.064.

The six ordinal categories related to feelings of nervousness, tension or edginess on the job (rarely or never, ~5% of the time, ~10% of the time, ~25% of the time, ~50% of the time, and >50% of the time) across the type of injury (LDC claimants) resulted in the cell counts being too small to analyse reliably with Pearson Chi-square analysis. The categories were therefore combined and a Fisher's exact test was conducted. Results revealed that experiencing feelings of nervousness, tension or edginess on the job were dependent of the type of injury (LDC claimants)

sustained at work, at the 5% level of statistical significance, p=0.0167, with LDC employees.

Organisational Variables

There were apparent differences in the proportion of injury type (SDC and LDC groups) for employment status. Responders with permanent/full time contracts were more likely to experience and SDC rather than LDC (88.6% vs 61.1%, Z-test of proportions, p=0.007) and responders on other forms of contracts were proportionally more likely to become an LDC claimant rather than a SDC claimant (38.9% vs 11.4%, Z-test of proportions, p=0.007). This was also confirmed by a Fisher's exact test for independence, p=0.013. Inferring that the contract type, hence employment status, was dependent of the type of injury sustained in the workplace.

In relation to Involvement of Safe Work Practices results revealed that were different between the LDC and SDC groups. Chi-square test of the variables attending a pre-employment medical and formally inducting an employee determined: that having a pre-employment medical was associated with the type of injury claim sustained (p=0.063) at the 10% level of significance; that a participant having a formal induction at the start of employment was associated with the type of injury claim (more likely to have a SDC) (p=0.055) at the 5% level of significance.

Psychosocial Variables

The psychological variable that was associated with a difference in the Type of Injury classification was how the participant rated whether they "Feel successful at work when I do my best". SDC claimants (17.1%) were more likely than the LDC claimants (2.8%) to "disagree" with the statement "I feel successful at work when I do my best" – this association was confirmed with a Pearson Chi-square test (p=0.042) – however this result is marred by the two cells containing expected values <5 which compromises the result.

Employee Univariate and Multivariable Data Analysis

The final iteration of the Binary Logistic Regression assessing the impact that certain variables had on the LDC output was conducted. The variables included in the final iteration of the regression were:

- self-perceived excellent health;
- employment contract status;
- whether outside contractors were formally inducted;
- workplace management and employees get on well together; and
- whether a better position/offer (would be a factor in me leaving my job).

The odds ratios of selected exposures impact on the Type of Injury classifications revealed that self-perceived excellent health had a protective effect on LDC outcome with an OR 0.239 (95%CI 0.059, 0.0973), inferring that individuals with self-perceived excellent health were less likely to be a LDC claimant at the 5% level of significance (p=0.046). Employment contract status, i.e. having a full time contract also had a protective effect on LDC outcome with an OR 0.119 (95%CI 0.028, 0.504) for a long-duration outcome (p=0.004). A company that had a formal induction process for outside contractors had a protective effect on the LDC outcome with an OR0.173 (95%CI 0.036, 0.820); seemed to reduce likelihood of an employee sustaining a long-duration claim (p=0.027). A negative relationship between workplace management had an increased likelihood of presenting as factor in a LDC injury (p=0.036), with an OR2.041 (95%CI 1.048, 3.975). Respondents that indicated that having a better position/offer (would be a factor in me leaving my job) were more prevalent in the LDC outcome OR4.631 (95%CI 1.068, 20.081) compared to the short duration claim outcome (p=0.041).

5.14.2 Employer Responses

Employer responses revealed that for SDCs were only available in the WA Workers' Compensation System. For LDC claims, 88.1% were received in the WA Workers' Compensation System with the remainder received in SRCA (11.9%). A Pearson

Chi-square test for association determined the legislation (processing) and Type of Injury was dependent at the 5% significance level.

Of the employer responses, the SDC cases had a higher proportion of Upper Limb injuries (48%) in comparison to LDCs (31%). Whereas LDCs (35.7%) had a higher proportion of torso injuries, including lower back and abdomen, in comparison to SDCs (22.8%). A Pearson's Chi-square test assessed the association between the different kinds of injuries sustained and the type of injury claim and revealed that the various injuries sustained by participants were not associated with the LDC or SDC outcome at the 5% level of significance. The mean number of number of sick days taken were statistically significantly higher in the LDC group (20 days) compared to the SDC group (3 days), at the 5% level of significance ($p<0.01$).

Organisational Variables

An assessment of the correlation between organisational variables was conducted to determine the most influential variables that could be used in the first iteration of the logistic regression model. Spearman's correlation testing found that if a company:

- Had a mission statement there was a positively correlation (0.376, p=0.002) with a company having a formal induction process.
- Engaged contractors there was a weakly correlation (0.232, p=0.055) with a formal induction training program.
- Provided inductions, there was a correlation with a company having a mission statement (0.248, p=0.093).
- A formal induction program (0.485, p=0.000), and whether contractors were engaged to begin with (0.952, 0.000).
- Provided ongoing training provided there was a weak (positively) correlation with a mission statement (0.220, p=0.74) at the 10% level of significance.
- Conducted a medical conducted prior to the employee commencing work there was positive correlation with a company having a mission statement (0.598, p=0.00), a formal induction process (0.514, p=0.00), and having an

induction for engaged contractors (0.499, p=0.00).

- If the company provided a doctor with a detailed job description including the physical demands of the job, there was a positive correlation with the company having a mission statement (0.338, p=0.005), satisfaction with formal performance management processes (0.219, p=0.077), and having a medical conducted prior to the employee commencing employment (0.559, p=0.00).

Psychosocial Variables

Psychosocial factors for the employer responses were analysed and Pearson Chi-square test found associations at the 5% level of significance between Type of Injury and psychosocial variables including; "Completion of duties", "full responsibilities", "provide solutions", "help problem solve", "motivated to learn", "work does best", "follow instructions", "respected", and "performance management".

Binary Logistic Regression

The employer deemed the completion of duties as having a protective effect on Long-duration Claims with an OR 0.39 (0.18, 0.70) at the 5% level of significance, p=0.003.

Receiver Operator Characteristic curves and Area Under Curve Analysis

ROC curves and subsequent Area Under Curve results determined that the variables used for the Employee model regression ("self-perceived excellent health"; "employment contract status"; "whether outside contractors were formally inducted"; "workplace management and employees get on well together"; and "whether a better position/offer (would be a factor in me leaving my job)") were a good approximation AUC 0.807 (95%CI 0.702-0.913) in determining the likelihood of an employee at risk of a long-duration claim.

Likewise, the variables used for the employer model ("HR Personnel"; "Job description provided to medical professional at pre-screen"; and, "completion of

duties") were a good approximation, AUC 0.790 (95%CI 0.666-0.913) in determining the likelihood of an employer's worker/workplace of being at risk of a long-duration claim injury. A summary of the findings of the research is provided in the following Table 54.

Table 54: Summary of research findings

Research Question	Associated Variables	Level of Statistical Significance
Do the following individual factors contribute to workers' compensation claims becoming long in duration?	Age (Further discussion Section 6.2.2 page 214).	Not significant (p=0.565)
	Place of Birth/Cultural Background (Further discussion Section 6.2.3 page 219).	Correlation (P value not applicable)
	Family Commitments (Further discussion Section 6.2.4 page 221).	Not significant (P value not applicable)
	Health Status (Further discussion Section 6.2.5 page 222).	Statistically Significant (P=0.060)
Do the following organisational factors contribute to workers' compensation claims becoming long in duration?	Type of employment contract (Further discussion Section 6.3.1 page 226).	Statistically Significant (P=0.013)
	Good Employee engagement (Further discussion Section 6.3.2 page 227).	Correlation (P value not applicable)
	Role of Supervision and organisational practices (Further discussion Section 6.3.3 page 232).	Statistically Significant Pre-employment (p=0.063). Formal induction (p=0.055).
Do the following psychosocial factors contribute to workers' compensation claims becoming long in duration?	Poor health and well-being (Further discussion Section 6.4.1 page 246).	Statistically Significant (P=0.060)
	Job dissatisfaction (Further discussion Section 6.4.2 page 251).	Statistically Significant Employer Responses completion of duties (P=0.003).
	Negative work experiences (Further discussion Section 6.4.3 page 256).	Not significant (P value not applicable)
	Low job control (Further discussion Section 6.4.4 page 257).	Not found to be significant
	Lack of supervisor and colleague support (Further discussion Section 6.4.5 page 260).	Not found to be significant

5.15 Concluding statement

The findings of this research provide evidence that the employee and employer models are predictor of LDCs. The literature reviewed identified a number of pre-incident variables that were found to compound the duration of incapacity and the research questionnaire produced evidence that the identified pre-incident variables provide a predictive model of LDCs. In the following chapter discussion centres on these findings and how they relate to the research questions on pre-incident variables contribution to LDC and schemes.

6.0: Discussion

6.1 Introduction

To address the research questions of this research a questionnaire was provided to both employees who had made a workers' compensation claim and to their employers to identify whether individual, organisation and psychosocial factors contributed to workers' compensation claims and more specifically LDCs.

Data Analysis was conducted on the 71 employee questionnaires 68 employer questionnaires on individual factors (including demographic and health information), organisational and psychosocial factors to determine what variables are predictors for long-duration workers' compensation claims. The level of significance was determined to be 0.05 for all variables in this research.

The literature review revealed that despite constant research and increased education by schemes to prevent LDCs, this small group of claims in Western Australia, nationally and internationally continue to increase in the number and costs relating to workers' compensation claims. Detailed statistics on LDC claims can be located in Chapter 3, however as a summary in Western Australia between 2009/10 and 2012/13 LDC accounted for 83.1% of all workers' compensation costs while making up only 26.6% of all workers' compensation lost time claims (WorkCover WA, 2014). Nationally, over the period from 2000-01 to 2008- 09 the average proportion of all claims with 60 or more working days lost accounted for 12% of the number of claims, but 75% of the total payments (Safe Work Australia, 2012b). There are no more recent statistics available nationally.

Upon conducting the literature review a number of factors were identified as contributing factors to the cause of ill-health and injury and more specifically LDCs.

The reduction and ultimate elimination of LDCs was thought to lie in the prevention of a number of factors that include individual, organisational and psychosocial

factors that exist with employees and workplaces prior to an injury occurring.

The research data analysis revealed that a number of the identified individual, organisational and psychosocial factors were found to be statistically significant or have a correlation with the onset of LDC outcomes. A summary of the findings of the research is provided in Table 53 at the end of Chapter 5.

6.2 Individual Factors

The first research question asks what individual factors contribute to workers' compensation claims becoming long in duration. Demographic factors found in the literature to contribute to workers' compensation claims becoming long in duration were:

- Age;
- Place of Birth/ Cultural Background;
- Family commitments; and
- Health status.

The following section discusses the findings of the variables of age, place of birth, family commitments, health status and cultural background in terms of the knowledge that this research has contributed to the effects that these variables contribute to ill-health and injury and more specifically the onset of LDC outcomes.

6.2.1 Demographic Variables

Gender

When reviewing the employee results from this study, it was revealed that eighty percent (80%) of employee respondents were male and 20% were female. This is somewhat comparative to State data and other State schemes nationally, which reveal that males have a higher proportion of claims than females and is representative of the wider population (Safe Work Australia, 2014c; Victorian WorkCover Authority, 2006; WorkCover WA, 2014; Workplace Health and Safety Queensland, 2014). Data published by WorkCover WA on sex distribution of injury

claims found that approximately 65% of claims are lodged by males compared to approximately 34.7% of females (WorkCover WA, 2013). Similarly in 2012/13, males lodged 68% of claims and femaleslodged 32% (WorkCover WA, 2014). Queensland 65.3% of males compared to 34.7% females (Workplace Health and Safety Queensland, 2014). Safe Work Australia (2014c) showed that a review of the 2012-2013 statistics revealed that males had a 25% higher rate for serious claims than females.

The results suggest that this survey had a slightly elevated response rate for male respondents, which may be as a result of the higher response rates of respondents in the oil and gas and mining industries. This could have also resulted from the insurers who assisted in the distribution of the survey having more clients in these industries, greater responses of employees and employer in this industry aware of the research by their employers and or the Seacare Authority who also assisted in the distribution of the research questionnaires.

National and State recording for occupations in schemes provide over 20 industry categories. In this research it was not possible to include all 20 categories especially given the sample size. Comparison on this research to national and State schemes was complicated by schemes providing data, which is not consistent. For example, injury statistics are coded by claims with no loss time, claims for loss time and as a percentage of all claims received in the schemes.

Occupation

In terms of occupation classification, this study condensed the categories used in State and national scheme data also for the above-mentioned reasons. This survey revealed higher percentages for labourers (41% of respondents) and tradespeople (37% of respondents). For example WorkCover WA results show that occupations with the highest number of claims were technicians and trades people (27.2%) followed by labourers (22.2%) (WorkCover WA, 2014).

Table 24 in Chapter 5 showed the slightly elevated response rate for labourers and tradespeople in this survey may have also resulted from the higher response rate of employees from the oil and gas and mining industries.

Body Location of injury

In terms of the bodily location of injury, results revealed that upper limb injuries were 49.3% of injuries, 21.9% to the lower limb, 21.9% to the torso region, and the remaining 6.9% were head and neck injuries. This is also somewhat reflective of statistics from WorkCover WA which show that the highest incident of injuries were sustained to upper limb injuries (36%), followed by Trunk or torso (22%) and lower limb injuries (23%) (WorkCover WA, 2014).

SDC or LDC claim

In terms of categorising respondents as either a short duration claim (SDC) or long-duration claim (LDC), this research revealed that the sample was evenly represented with SDC respondents and LDC respondents making up 50.7% and 49.3% respectively. These results suggest an elevated response rate by LDC respondents given that industry statistics indicate that LDCs are a small group of claimants, for example Price Waterhouse Cooper's report "WorkCover WA: 2014/15 recommended premium rates", noted that LDCs made up 18% of all workers' compensation claims in Western Australia (both those claims with or without lost time) (Price Waterhouse Coopers, 2014). This study did not distinguish respondents across lost time or otherwise, however primary analysis would suggest a higher response rate has resulted from LDC employee and employer respondent data.

Comparison of employment status across State and national schemes was not possible given that this was not a category analysed in State and national schemes.

The results of employer demographic analysis revealed that SDC cases had a higher proportion of Upper Limb injuries (48%) in comparison to LDCs (31%). Whereas

LDCs (35.7%) had a higher proportion of torso injuries, including lower back and abdomen, in comparison to SDCs (22.8%). This is also consistent with the results obtained in employee responses. Pearson's Chi-square testing assessed the association between the different kinds of injuries sustained and the type of injury claim and revealed that injuries sustained by participants were not dependent (associated) on the LDC or SDC outcome at the 10% level of significance.

6.2.2 Age

Results did not identify any findings of differences in the type of injury associated with age category, nor were the ordinal age categories found to be correlated with the type of injury (SDC or LDC) upon testing conducted. This is similar to the findings of Schultz *et al* (2005) who found that age was not a factor that influenced the time it took of an injured or ill employee to return to work.

This results contrasts to research conducted by Bernacki *et al.* (2007), Smith *et al.* (2014) and statistical analysis obtained by WorkCover Western Australia (2014) that shows that older employees, and more specifically employees in the 55-59 and 60-64 year age categories had the highest rate of LDC. WorkCover Western Australia (2014) report that people aged 60-64 had the highest frequency rates (11.3 per million hours worked) between 2009/10 to 2012/2013.

Safe Work Australia (2014) provided a summary of Australian workers' compensation statistics for the 2011–12 financial year. Table 54 following represents the serious claims lodged by age group. The highest category of claims lodged was by the age group 50-54 years which represented 17 575 claims or 14.6%.

Table 55: Serious Claims Lodged by Age group (Safe Work Australia, 2014a, p. 12)

Age group	Number of serious claims		
	Male	**Female**	**Total**
All serious claims			
<20 years	3 395	1 370	4 765
20-24 years	7 550	3 280	10 830
25-29 years	8 145	3 485	11 630
30-34 years	8 005	3 280	11 285
35-39 years	8 495	4 120	12 615
40-44 years	9 215	5 465	14 675
45-49 years	8 980	6 515	15 495
50-54 years	9 680	7 895	17 575
55-59 years	6 820	5 065	11 885
60-64 years	4 665	2 615	7 280
65 years+	1 435	685	2 120
Total	**76 385**	**43 770**	**120 155**

In a comparison of claims across age, Safe Work Australia also found that the proportion of serious claims awarded to employees aged 55 and above rose 9% in 2000-01 to 18% in 2011-12 (Safe Work Australia, 2014a, p. 25). The claim frequencies across all national claims lodged as displayed in Figure 21, showed that that age group 55 years and above incurred the highest claim frequency across all age groups

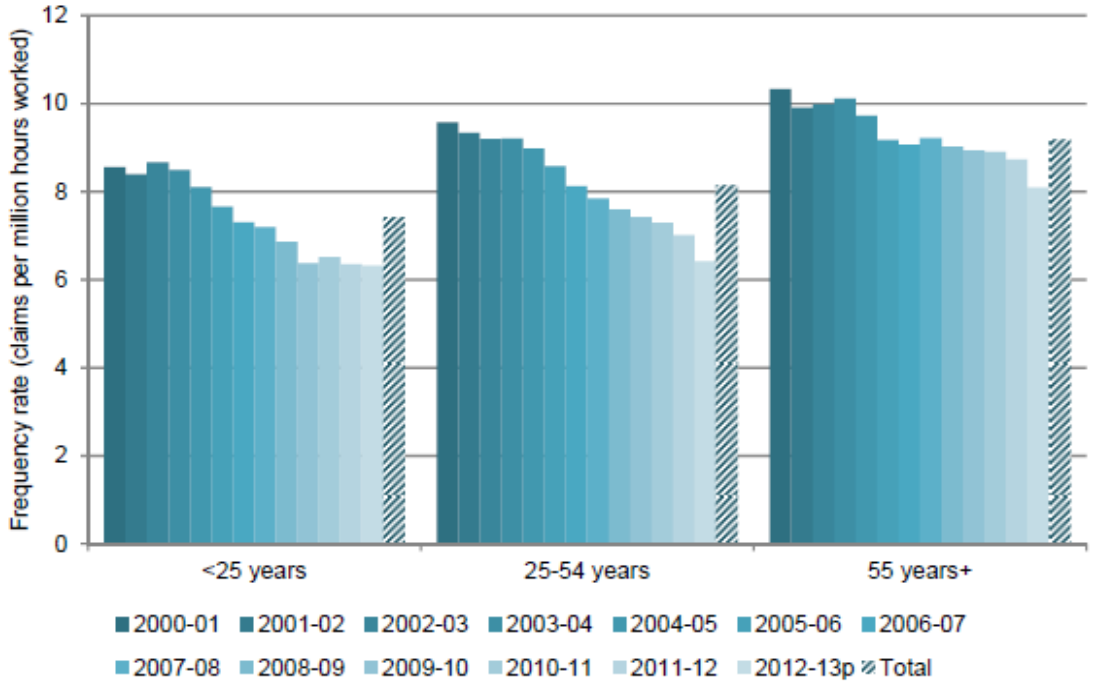


Figure 21: Serious Injury by Age Groups (Safe Work Australia, 2014b, p. 33).

The contrast between the research results, literature review and the above results could be as a consequence of several factors. The research articles and statistics used often vary in whether the samples used are representing all claims, time lost claims only or serious claims. The various State and national jurisdictions do not have consistent measures for the data that they provide and as such the figures vary according the samples being utilised.

The Safe Work Australia report "Who Did and Didn't receive Workers' Compensation in 2009-10" identified that the following categories of workers were less likely to lodge a workers' compensation claim in the event that they were injured at work:

- A greater proportion of female workers compared with males felt that their injury was too minor (32% to 28% respectively) to lodge a claim;
- A greater proportion of female employees also thought that they were not covered for workers' compensation or not eligible;

- According to the research, age played only a minor role in whether an employee received workers' compensation entitlements. In 2009-10 36% of injured employees in the age group 15-24 years received compensation compared to 41% in the 55 years and over age group;
- Employment status was also a factor as to whether employees received workers' compensation or not. Employees who have accrued annual leave entitlements were more likely than casuals (employees without leave entitlements) to receive compensation. In 2009-10 48% of employees with leave entitlements received compensation compared to 32% of employees without leave entitlements;
- Employees born in countries that did not have English as its main language were less likely to apply for workers' compensation (34%) in comparison to Australia at 44% and those born in main English speaking countries (45%);
- The research revealed that sick leave was the most common type of financial assistance other than workers' compensation accessed by injured employees. For injuries involving less than 5 days off work accounted for 31% using sick leave and more than 5 days 20% of injured employees.

(Safe Work Australia, 2011b)

In a further publication from Safe Work Australia (2011b), ill or injured employees who perceive their claim as minor or who have an injury that does not require extended periods off work were also more likely not to lodge a workers' compensation claim. In contrast ill or injured employees who perceived their injury to require extended times off work are more likely to lodge a workers' compensation claim. Employees whose employment status was casual were also more likely to lodge a claim given that they are not able to use other forms of accrued leave to support their periods of incapacity.

This would suggest that employees who are older may only lodge a workers' compensation claims if they perceive that their injury is serious or may affect their ongoing employment.

The Australian Bureau of Statistics (2014)[ABS] confirm that "of the 531,800 persons who experienced a work-related injury in the last 12 months, 326,000 or 61% received some form of financial assistance. Of those who received financial assistance, 56% received workers' compensation, 39% did not apply for workers' compensation and 4% applied for and did not received workers' compensation" (Australian Bureau of Statistics, 2014, p. 7). The ABS advised that "of the 326, 100 persons who did not apply for workers' compensation, approximately 44% reported that the main reason for not applying for workers' compensation was that they had a "Minor injury only/not considered necessary", 10% "did not think eligible" and a further 10% said they were "not covered or not aware of workers' compensation" (Australian Bureau of Statistics, 2014, p. 7). Figure 22 following displays the mains reasons for workers' not lodging a workers' compensation claim.

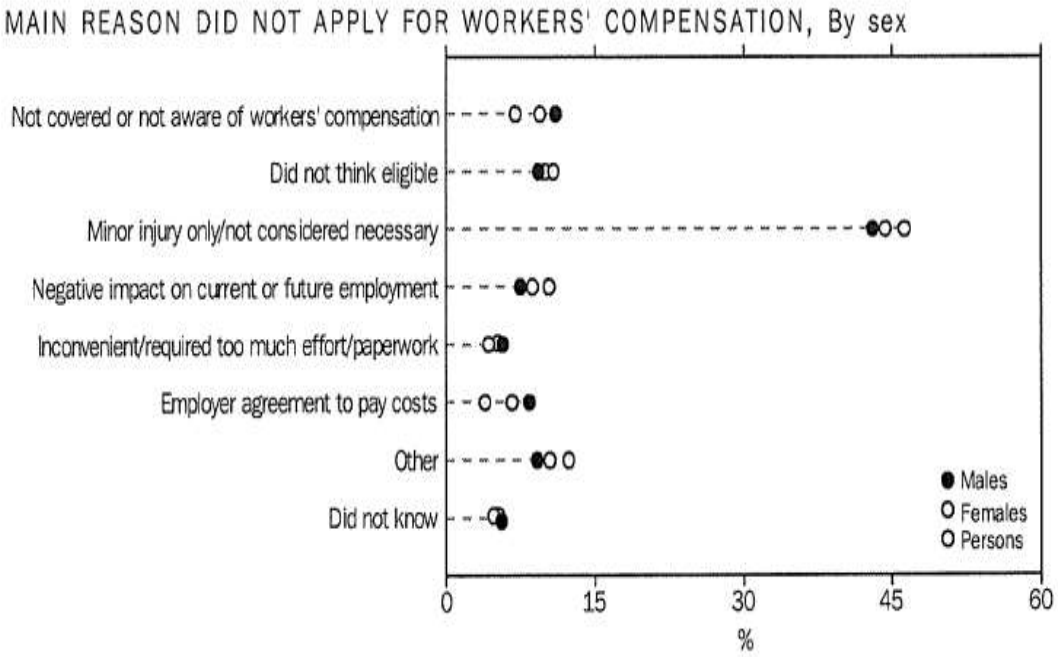


Figure 22: Main reasons workers did not lodge workers' compensation claim (Australian Bureau of Statistics, 2014, p. 8).

The statistics of Safe Work Australia and ABS therefore suggest that the lodgement of claims is skewed.

The results of this survey showed that a higher proportion (60.3%) of ill or injured employees were in the age group 25 to 45 years. This is demonstrated in Figure 19 in the results chapter. As suggested in the literature review, research shows that older workers are generally at greatest risk of incurring an LDC (Bernacki et al., 2007; Smith et al., 2014). Further, as outlined by the Safe Work Australia article, aged and more specifically older employees may be more inclined to lodge workers' compensation claims if they perceive that their injury is serious and could affect their employment or financial security (Safe Work Australia, 2014c).

Had this survey had a higher rate of older employee respondents, it would be of interest to undertake analysis to identify the magnitude of older employees and their employment status to identify trends associated with the lodgement of workers' compensation claims.

6.2.3 Place of Birth/Cultural Background

Birthplace/Cultural background was identified in the literature as being a factor of employee workers' compensation claims becoming long in duration.

Culture is one of several significant variables that influence human interaction. "Further when people move to a new country, they often find the new environment is quite different to what they have been used to. They are likely to experience differences in language, dress, food, accommodation, transport, money, weather, lifestyle, attitudes and behaviour. Adjusting to a new place, people and practices can cause feelings of being 'out of place', anxious, confused, distressed, frustrated and/or doubtful" (Faculty of Health, 2013, p. 1). Negative feelings are common and different people experience them at different times. This is referred to as "culture shock" (Faculty of Health, 2013).

It would be expected that employees from various cultural backgrounds or who are experiencing cultural shock would experience feeling of alienation, may be experiencing problems with management and colleagues and to some extent display symptoms of withdrawal from the workgroup or workforce.

The Australian Bureau of Statistics (2014) in their statistics on Work-related injuries in Australia July 2013 to June 2014 show that people born in Australia who sustained a work related in for this period equated to 255.7 per 1000 persons or 54.4% of people who reported a work related injury or illness. In comparison people born overseas which equated to 68.1 per 1000 persons or 35.4% of people who reported a work related injury or illness (Australian Bureau of Statistics, 2014).

These results reveal that more Australian born workers have incurred illness or injuries during this period which is to be expected, however the report does indicate that people born overseas do also have a high rate of ill-health or injuries in the workplace. In considering these results some caution does need to be given due to the previously discussed problem of employees not lodging claims (such as employees born overseas, women and older workers).

The employee questionnaire did not reveal birthplace as statistically significant however this was due to low response rates in the various categories.

Statistics in Table 29 indicate that out of respondents from UK and Ireland and Europe, 3 respondents were identified as SDCs compared 10 being identified as LDCs. Whilst this conclusion is made superficially, further research on this topic would be able to provide clearer findings. The work of Hofstede (1980), Trompenaars and Hampden-Turner (1998) and Manning, (2010), identified culture and team dynamics in the literature review as potential drivers of motivation and as consequence may be a potential drive of LDC outcomes.

6.2.4 Family Commitments

Findings were unable to identify any factors in relation to family commitments that affected the onset of LDCs from the employee responses. The findings in this research were similar to Schultz *et al.* (2005) who identified that marital status, number of children, or other family commitments, did not affect the time that employees with a work related injury or illness too to return to work.

This finding contradicts research that focuses on employees needing an organisation that provides a better balance between work and family life (The Work and Family Team, 2003). Victoria's Action Agenda for Work and Family Balance involved the Government working with employers, unions and the wider community to:

- Achieve a rise in employee, business and community awareness of family work life balance;
- Provide practical assistance and support to employees and employers;
- Ensure policies reflect the pursuit of a better balance (The Work and Family Team, 2003).

Skinner and Chapman (2013) in their research highlighted a number of previous reviews and meta-analyses that demonstrated experiences of high work-life conflict are linked to lower job satisfaction and organisational commitment, as well as impaired physical and psychological health (Allen, Herst, Bruck, & Sutton, 2000; Amstad, Meier, Fasel, Elfering, & Semmer, 2011; Beauregard & Henry, 2009). Recent data from the Household, Income and Labour Dynamics in Australia (HILDA) survey have shown that work-family strain predicts decreased physical and mental health (Magee, Stefanic, Caputi, & Iverson, 2012).

The employer questionnaire did not ask the employer representative to identify their employee's family commitment status.

6.2.5 Health Status

Employee questions in relation to health revealed that respondents perceiving themselves as having excellent health were dependent on whether an employee might be likely to have an SDC (85.7%) rather than an LDC (66.7%) at the 10% level of significance (p=0.06). It was also identified that LDC respondents were proportionally more likely to have:

- experience muscle aches;
- thought that their job affect their health;
- thought that having a different job would improve their health;
- suffered a back pain;
- suffered a back injury at work;
- suffered headaches;
- experienced weight loss;
- experienced weight gain; and
- experienced mood swings.

Despite this, the Z-tests confirmed that none of these variables were statistically significant. Further data analysis also revealed that employee work-related wellbeing and health had a negative relationship with the onset of LDC claims. Feeling depressed 1-2 times per week (36.1% vs 26.5%) or 1-2 times per month (38.9% vs 20.6%), was more common to the LDC employees relative to SDC employees.

Comments from LDC employee respondents reflected this finding. One respondent from the construction industry commented in his questionnaire that hot weather made them feel pretty blue or depressed about once a week during the most of the day.

Therefore it can be proposed that if any employee at work was experiencing problems due to poor wellbeing and advises they feeling depressed several times per week prior to an incident of illness or injury, it is anticipated that they are at risk of becoming an LDC.

Reporting having excellent health was a protective variable on the onset of LDCs. A participant perceiving themselves to have excellent health was dependent of whether an employee might be more likely to have an SDC (85.7%) rather than an LDC (66.7%) at the 10% level of significance, $p=0.06$.

The number of sick days taken by LDC and SDC claimants prior to the workplace incident were analysed from the employer responses. It was determined that LDCs had a statistically significantly higher mean number of sick days (20 days) in the time prior to their workplace injury or illness occurring in comparison to SDCs (3 days), at the 5% level of significance ($p<0.01$).

This results reconfirms the opinions of Cotton (2006; 2003), HSE (2006) and Hom & Kinicki (2001). Hom & Kinicki (2001), whose theory indicates employees that are exhibited sign of withdrawing from their employment as a means of coping with their dissatisfaction with their position or employment. If employees are dissatisfied prior to sustaining an injury, the injury itself may be a catalyst to job avoidance and withdrawal from their employment and that upon sustaining a workplace injury or illness the workers' compensation claim allows for the employee to continue to withdraw from the workplace. Absenteeism records showing a worker with greater time lost prior to workplace illness or injuries is a predictive value to potential LDC claimants (Hom & Kinicki, 2001).

Other commentators [Cotton (2006; 2003) and Health Safety Executive (2006)] stateed that ill health and high levels of absenteeism in the work place is an indicator of poor management of workplace health, which can lead to an increase in costs for the organisation. A main indicator of

how well an organisation is managed is the amount of absenteeism or employee withdrawal from the workplace (Health Safety Executive, 2006).

Employer comments also reflect these findings. An employer respondent advised that one of the organisation's employees had sustained an LDC injury, which appeared to be minor. The employee returned to normal duties post the injury, however after lodging a workers' compensation claim, the employee subsequently had an extended period off work. The employer also commented that the employee was not a productive employee and put off doing as much as possible.

The Australian Bureau of Statistics (2014) provided descriptive statistics (number and %) on people who worked at some stage in the last 12 months who reported a self-assessment of their health status, but no comparison of the results from this research and the statistics provided from the ABS can be performed given that the ABS statistics do not report on the duration of the claim or loss time status of the illness or injury. However these statistics do provide an indication that most people who experienced a work related illness or injury reported having very good health, or good health, and in general only 20% of ill or injured employees have long-duration claims.

It was evident from the literature review that employee wellbeing is essential to the prevention of ill-health and injury in the work place. The causes of wellbeing in organisations are multi-factorial. Cotton (2006) advises that factors that can influence wellbeing are coping strategies, personality traits and conditions and culture in the workplace (Cotton, 2006). Employee's emotions are influenced by their overall mood while working within their workgroup. Another important influence on wellbeing is the employees themselves.

Cotton advises that increasing employee wellbeing reduces withdrawal factors. Cotton (2006) found that the strongest influences on withdrawal factors were personality, organisational climate, work experiences and emotions. From the literature review it was evident that

employee's poor physical and mental health prior pre-incident was a strong predictor of withdrawal behaviours, ill-health and injury (Cotton, 2006; Cotton & Hart, 2003; Health Safety Executive, 2006).

Organisations require healthy and well-motivated employees to deliver high-quality services, this is a major factor to being able to effectively manage occupational health this (Health Safety Executive, 2006).

According to Cotton (2006) occupational health is about how work and the work environment can affect an employee's health and equally how an employee's health can affect their ability to do the job. Organisation's that improved wellbeing in a work place find that they have: higher morale (more positive emotions) amongst their employee's, less distress, higher job satisfaction, and improved productivity.

Committing resources to employee wellbeing in the work place can prevent ill-health and absenteeism that may arise from this. Further committing resource's for rehabilitation and supporting employee's in their return to work are important factors, which will benefit both employees and employers (Health Safety Executive, 2006).

These results show that employee health status was a variable of significance to the incidence of LDC outcomes. The findings of organisation factors are reviewed in the following section.

6.3 Organisational Factors

The second research question proposed in this research was, "Do organisational factors contribute to workers' compensation claims becoming long in duration?" The variables identified in the literature were:

- Terms of employment such as permanent, part-time, casual and contracts - including short term or fixed contracts (resulting in job insecurity);
- Structure of the role to encompass good employee engagement; and
- The role of supervision and organisational practices.

The following section discusses the findings of the variables of terms of employment, structure of the role including job autonomy, good employment engagement and job satisfaction; and the role of supervision and organisation in terms of the knowledge that this research has contributed to the effects that these variables contribute to ill-health and injury and more specifically the onset of LDC outcomes.

6.3.1 Types of Employment Contract

Results of this research revealed a clear difference in the proportions of injury type (SDC and LDC groups) for employment status. Responders with permanent/full time contracts were more likely to experience and SDC rather than LDC and responders on other forms of contracts were proportionally more likely to become an LDC claimant rather than a SDC claimant. This was also confirmed by a Fisher's exact test for independence ($p=0.013$). Consequently this shows that being employed on a permanent full-time basis provides a protective effect to the onset of a LDC in the event of a worker is ill or injured during the course of their employment.

These results are consistent with the findings of the literature review that demonstrate security of continuing employment for employees assisted to deliver quality outcomes for organisations (Mussett, 2001; Jansz, 2014).

Murphy *et al.* (2003) noted that employment status was related to the individual's sense of wellbeing. Murphy *et al.* advised that "previous multivariate analyses of post-injury employment outcomes had been largely ignored" (Gregory Murphy et al., 2003, p. 281). The most striking findings of the analysis of Murphy *et al.* (2003) study was the influential role of psychological factors in terms of workers' motivation and success in achieving positive employment outcomes.

In this research it was noted that one LDC respondent from the clerical and retail industry made the comment that they felt depressed 1 to 2 times per week because their contract of employment was on a casual basis. The respondent further advised that they loved their job and the organisation that they worked for.

These results confirm that employment status was a variable of significance to the incidence of LDC outcomes.

Terms of employment of the ill or injured employee was not included in the employer questionnaire therefore analysis could not be conducted on employment status of the ill or injured employees.

6.3.2 Good Employee Engagement

The employee questionnaire asked respondents multiple questions on pre-incident variables to identify their level of engagement. Ill or injured employees were asked to identify their level of satisfaction about pre-incident conditions (Section 5.6.1), attitudes to working relationships (Section 5.6.2) and attitudes towards being a successful worker (Section 5.6.3). The combination of these questions identified the engagement of the respondent. It was thought that employees who had higher levels of satisfaction would be less likely to be LDC claimants.

The majority of the questions did not show results of significance, with the exception of - I feel successful at work when I do my best. The results of these questions can be located in Tables 40, 41 and 42 in Chapter 5.

Questions that were asked of employees were if the organisations consulted their employees in relation to decisions; did the organisation treat their employees with respect, did employees perceived that their performance was fairly assessed, did the employees perceived the organisation a good place to work and did the organisation provided employees all the information to perform their role were analysed with both Z-test of proportions and Chi-square analysis at the 5% level of significance. Results failed to show differences between SDC and LDC respondents.

These results are in direct contrast to the findings of Schultz *et al*. (2002) that psychosocial factors contributed to the inability of employees returning to their pre-injury role and longer timeframe comparative to those employees whose employment did not demonstrate the same psychological factors. However is it possible that with a larger sample size an association could be identified?

Organisational health researchers have found the following:

- Healthy people make healthy companies;
- Healthy companies more often and over a long period of time are more likely, to make healthy profits and to have healthy returns on investments;
- Where organisations had occupational health programs that provided resources for workplace health and wellbeing, encouraged healthy lifestyles (including diet and exercise) they had beneficial RTW procedures. These organisations were found to be more cost efficient and profitability (Cotton, 2006; Health Safety Executive, 2006).

Cotton (2009) demonstrates in the following figure the structure of occupational wellbeing. Central to this model is the key organisational factors of job satisfaction, morale and distress. These factors can positively or negatively affect individual and team resilience, quality of work, psychological health/injury and mental health.

Figure 24: The Structure of Occupational Wellbeing (Cotton, 2009, p.11)

Resilience for individual, work teams and organisations is an important factor. Resilience according to (Taylor, 2009) is a learned ability (individual or collective) allowing individuals and groups to: bounce back from adversity – toughness and recovery skills; thrive on challenges – engagement, optimism; positive impact on others – empathy and compassion; reach full potential – exercise talents in a meaningful way.

The health of an organisation is multi-factorial in nature. It is contributed to by factors demonstrated in the organisational health chart in Figure 25 (Cotton, 2009). Factors such as an individual's and organisation's characteristics effect the employee motivation and wellbeing and in turn the organisations wellbeing and performance.

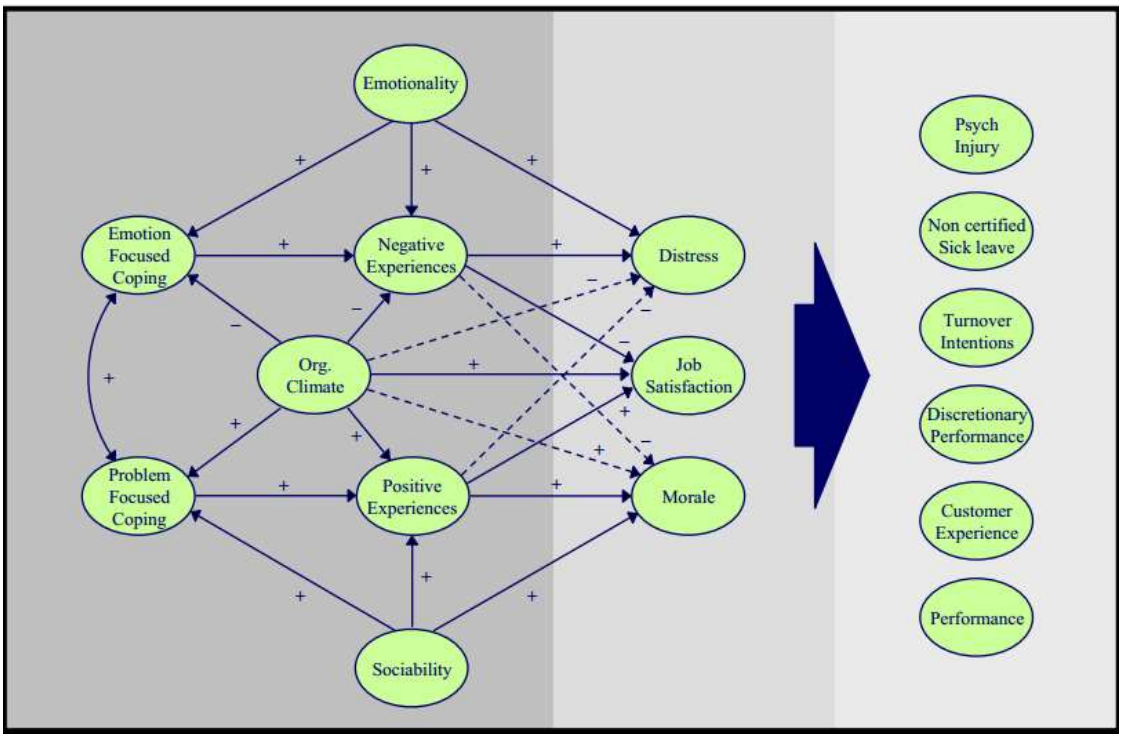


Figure 25: Organisational Health (Cotton, 2009, p.7).

According to Cotton (2006), the benefits of health and wellbeing to the business are:

- savings on cost of treatment for psychological and psychiatric conditions;
- improved productivity;
- reduced time off; and
- cost savings.

(Cotton, 2006)

Simple health and wellbeing programs have been effectively implemented by many organisations. Educating the workforce on nutrition, diet, healthy eating and the importance of exercise has led to a reduction in costs associated with workplace ill-health and injury as well as increased job satisfaction, morale and productivity (Cotton, 2006).

The employer questionnaire reviewed a number of factors to try and determine if good employee engagement influenced ill health and injury. Employer respondents were asked their views on the whether the employee always completed their duties specified in their job descriptions, did the employee fulfil all responsibilities required by their job, did the employee generate original solutions to problems, was the employee personally inclined to help an employer with a problem, did the employee always do their best, did the employee always follows instructions and directions well from superiors, was the employee well respected by their team, had the employee attempted a return to work on alternative or restricted duties, and was the employee's under performance management prior to their workplace incident. It was proposed that employers of LDC claimants would be less inclined to agree to the ill or injured employee meeting the obligations outlined in these questions.

Seligman (2011) discusses the subject of wellbeing and flourishing in a non-work related work setting, which was introduced in Chapter 3. Seligman advised for an individual to flourish they had to have a number of core features and a number of addition features. Engagement was a core features as to where positive emotion, interest, meaning and purpose. The additional features included: self-esteem; optimism; resilience; vitality; self-determination and positive relationships (Seligman, 2011).

It is proposed that such theory could apply to work organisations, whereby if an employee is not positive about their role or the people that that work with, if the employee is not interested, does not find meaning in their job and does not feel their role provides them purpose then they are less likely to be productive and are more like to withdrawal from their team and employment than be productive and engaged at work (Cotton, 2006; 2009; Cotton & Hart, 2003; Health Safety Executive, 2006; Heaney et al., 1993; Hom & Kinicki, 2001).

Cotton (2003) found that by making changes to employee's wellbeing, this in turn will create a positive result and will influence an employee's voluntary performance. Cotton (2003) described voluntary performance, as the work that employees do that supports the organisation, but isn't part of their main responsibilities. This is consistent with Organ's organisation citizenship as cited in Murphy (2002). Some examples are: dedication and making an effort, volunteering to do tasks, helping others in the workplace and promoting the organisation to other people (Cotton & Hart, 2003).

Therefore these results confirmed that the pre-incident variables identified for good employee engagement were predictive of LDC outcomes.

6.3.3 Role of Supervision and Organisational Practices

6.3.3.1 The role of supervision

Ill or injured employees were asked to comment on the effectiveness of their relationship with their supervisors/manager, whether their supervisor recognised the employee's potential and if the supervisor/manager understood their problems or needs. These questions were asked to identify if there was a difference in the responses from SDC and LDC claimants.

The employer representatives were asked to provide their views of whether an effective working relationship and if employee followed instructions of the manager and supervisor. It was thought that LDC claimants would be less likely to have an effective working relationship and would be less likely to follow instructions with management and supervisors.

The results of these questions revealed that employer representative of LDC claimants were more likely to disagree with the statement that there was an effective relationship with the employee. Further testing was unable to identify any findings of significance.

Results also reveal employees following instructions and directions of managers or supervisors had a similar finding. Employers of LDC claimants were more likely to disagree with this statement in comparison to SDC claimants.

An LDC employee respondent provided further support to these finding by commenting that they had to change their job after a workplace injury and that they now felt a lot better and less stressed in their current job. The LDC respondent advised that their former employer was bossy and their current employer appreciated their effort and hard work.

Further evidence is provided by a SDC employee respondent in the 55 to age category who sustained an upper limb injury and worked for the construction industry. He advised that he had been with the organisation for 35 years and found them to be a supportive organisation. He felt that if they had not provided him employment he was probably wouldn't have had a job. This comment is of significance given the respondents age and industry. Despite these factors the employee was a SDC respondent.

Cotton (2006) revealed that poor supervisory and organisational support is now being increasingly recognised as a major psychosocial barrier, contributing to both psychological and physical injury outcomes.

Heaney et al. (1993) found that "social support relationships were important especially between the co-worker, the supervisor relationships should provide both emotional and instrumental support" (Heaney et al., 1993, p. 502) Employees with high levels of support reported higher levels of participation than those with little involvement in the project. This study showed there is a need to incorporate factors such as the industrial relations practices of organisation into the worksite stress programs (Heaney et al., 1993).

Leadership from managers at the highest level of an organisation is important, without it, an organisation will not be motivated to take action. Training and support for managers to ensure healthy relationships with their teams can make a real difference (Health Safety Executive, 2006).

The research of Bigos et al. (1991) suggested that post injury the main determining factors to whether a worker will return to work is dependent on their relationship with their direct manager or supervisor.

Cotton (2009) in his table following shows various leadership styles and the effect this has on individuals and teams. In Table 56, liaises fair or excessively directive leader's styles caused low perceived support, low engagement, negative feedback and poor communication with their employees and teams.

Table 56: Leadership Styles and Withdrawal Behaviours (Cotton, 2009)

Leadership Styles and Withdrawal Behaviours		
Laissez-Faire Leader as Technical Advisor	**Popular Leader**	**Excessively Directive Leader**
• Low support. • Low clarity. • Low engagement. • Does not communicate views about important issues. • Neglect feedback. • Fail to follow up on requests for assistance. • Avoidance of leadership responsibilities.	• High support. • Lower clarity. • Focus on positive interpersonal relationships. • Low focus on core business. • Neglect performance management. • Avoid tough conversations.	• High clarity. • Low perceived support. • Low engagement. • Poor communication. • Neglect of developmental feedback. • Over-emphasis on corrective feedback. • Perceived stigma about reporting personal problems.

From the research (Cotton, 2009) defines characteristics of a supportive leader in Figure 26.

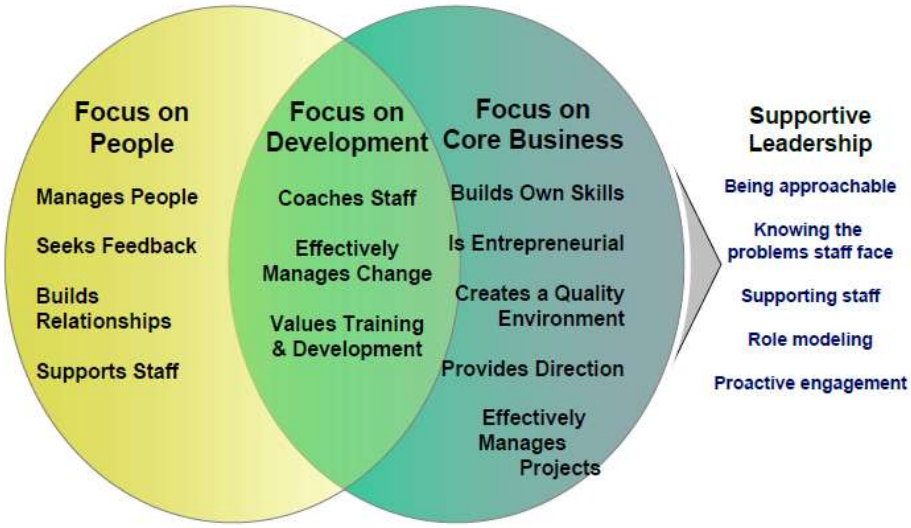


Figure 26: Supportive Leadership (Cotton, 2009, p.14).

Cotton (2006) noted effective and supportive leadership (as identified in Figure 26) needs to include the following: respect for the individual and their diverse needs; recognition and support for individuals and their wellbeing; and encouragement and role modelling of effective behaviours (wellbeing health and work life balance) (Cotton, 2006).

Cotton (2009) demonstrates in Figure 27 how organisational factors such as leadership and team dynamics can affect employee emotional and physical wellbeing and shows the result of such factors on the individual's performance and behaviour.

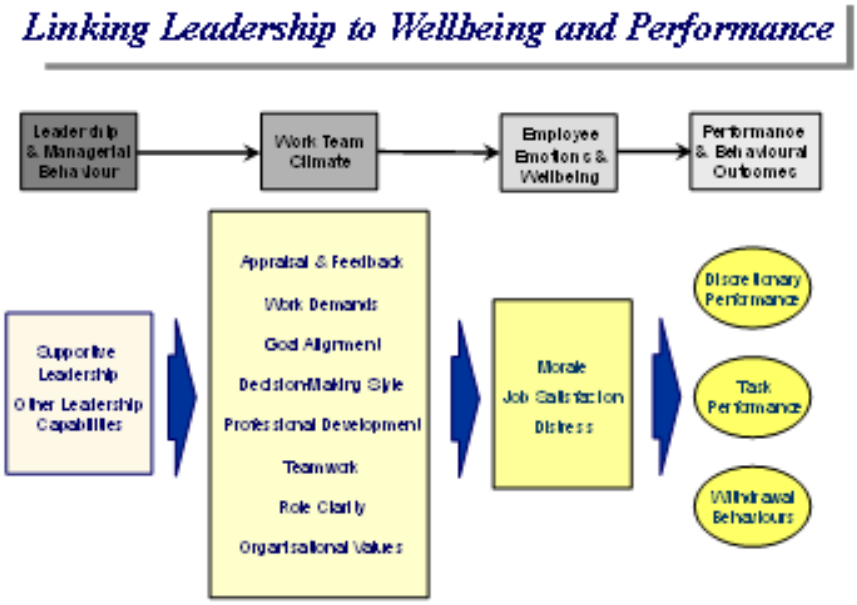


Figure 27. Linking Leadership to Wellbeing and Performance (Cotton, 2009 slide 17)

Leadership in today's competitive environment is growing increasingly more difficult due to the conflict between meeting business operational requirements and ensuring that operations are managed safely, effectively and efficiently (Connell, Burgess, Toh, & Quinlan, 2009). Hansen and Taylor (2009) commented on the challenging times bought about by the global financial crisis and the effect this has on leaders in an organisation. Hansen (2009) comments that leadership in challenging times can be difficult and as consequence leaders need resilience leadership training to allow them to stay claim, focus and energised; radiating confidence; compassion and credibility; generating hope and optimism; and strategic and positive energy (Hansen & Taylor, 2009).

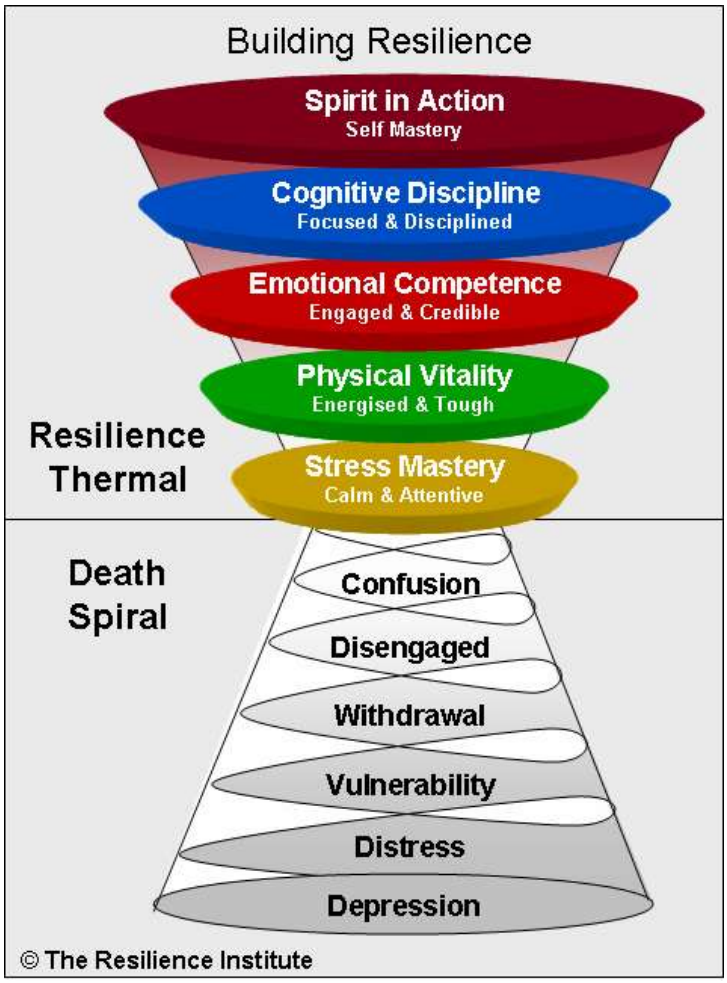


Figure 28: Learning's from organisation health programs (Hansen & Taylor, 2009, p. 1).

In this resilience model (Hansen & Taylor, 2009) includes reference to the death spiral whereby individuals find that they are unable to be resilient and cannot bounce back. Rather they spiralling downwards and negatively affecting their health and performance.

Hansen advises to "prevent the death spiral in team members, leaders must: focus attention to combat confusion; encourage rejuvenation to combat disengaging; be present and available to combat withdrawal; and ensure self-care to combat vulnerability" (Hansen & Taylor, 2009, p. 1).

According to Hansen focusing on short term goals such as unexpected dramas, external pressures and cash flow pressures can distract leaders, which squeezes people's capacity to stay engaged and focused on long term organisational goals. Team resilience training and education is seen as vital to achieve long term organisational goal (Hansen & Taylor, 2009).

Hansen comments that team members are attuned to stress in leaders. When leaders become despondent, cynical, angry or fearful the impact is immediate broadcasted through the organisation and stakeholders (Hansen & Taylor, 2009).

Leaders tend to lose their rejuvenation and fitness disciplines when under pressure, losing the motivation or being too time poor to exercise. Individuals tend to cope better with adversity if the body is strong and trained. The science is clear on the benefits that accrue from daily physical training (Hansen & Taylor, 2009). Whilst a stretch and brisk family walk will assist, strength training counters the destructive effects of distress (increased cortisol and insulin) by stimulating Growth Hormone, DHEA and insulin sensitivity (Hansen & Taylor, 2009). The metabolic effect to weight management, capacity to absorb pressure and sleep are immediately felt.

Adversity causes a person's thinking to focus on self-preservation however it is a leader's role to support and lead the team (Hansen & Taylor, 2009). Training for leaders in engaging emotion, supporting teams and team building is essential to ensure that adversity does not take its toll on the leader and their team.

Hansen advises that effective leaders must have strategic flexibility. Following are examples of strategic flexibility for leaders:

- Setting high standard for leadership;
- Set feedback and course for team;
- Learn from mistakes, admit and move on;
- Think boldly and test every option;

- Believe that there are multiple options for improvement;
- Test these options relentlessly;
- Stay close to customers and stakeholders;
- Roll up your sleeves and help the team;
- Consider taking a salary cut;
- Prepare for future opportunities;
- Celebrate and reward success;
- Champion failure that provides learning.

(Hansen & Taylor, 2009).

6.3.3.2 Pre-employment health screening

In relation to the Involvement of Safe Work Practices employee questionnaire analysis results revealed that there was differences between the LDC and SDC groups. Employees who did not undergo a pre-employment medical assessment were more likely to incur a LDC in comparison to SDC (p=0.063). Further, employees who did not have a formal induction for employees were more likely to become a LDC (p=0.055).

This indicates that organisations who do not conduct pre-employment health screening are at a higher risk of incurring LDCs. As part of the pre-employment health screen, providing reviewing physicians with detailed job descriptions outlining the physical demands of the job, assist in limiting the likelihood of recruiting individuals not physically suited for the job requirements. This in turn will reduce the likelihood of an unsuitable employee sustaining an injury or illness that they will struggle to recover from (to a level that will make them fit for their pre injury role) given they may have been unsuitable for the role in the first instance. Therefore the results of this analysis indicate that pre-employment health screening can contribute to the prevention of a LCD.

Pachman (2009) revealed that pre-employment medicals, also referred to as pre-placement examinations, strive to place and maintain employees in an occupational environment adapted to their physiological and psychological capacities. The goal of pre-employment medical examinations is to determine whether an individual is fit to perform his or her job without risk to himself or others.

Pachman (2008) confirms that the objectives of pre-employment examinations have traditionally been to ensure that prospective employees can perform their jobs safely without placing the co-workers or themselves at risk.

Serra et al. (2007) analysed all published research regarding fitness for work assessments including pre-employment medical examinations. The "consensus was that fitness for work is mainly determined by physical demands and not by medical conditions (with psychiatric conditions as a possible exception). In addition the assessment for fitness for work is a better predictor of future health outcomes and costs than medical diagnoses" (De Kort, Uiterweer, & Van Dijk, 1992; Pachman, 2009, p. 530).

According to Pachman (2009) for pre-employment medical examinations to be effective they should:

- Not be conducted as a compliance measure rather they should effectively evaluate a candidates ability to perform the role
- Be conducted by allied health professionals who understand the physical demands of the job, the work environment and working conditions.
- Should be mindful of cultural risk factors. For example some cultures are at a higher risk for higher blood pressure and hypertension.

Pachman (2009) also recommended that for pre-employment medical examinations to be effective they should "be conducted in a timely manner without unnecessary or indiscriminate tests that have no bearing or relevance to the work to be conducted" (p. 475).

Many organisations test fitness for work at the pre-employment examination without any follow up or regular assessments conducted thereafter. The pre-employment medical examination and ongoing fitness for work assessments contain vital history and information about an organisation's employees. Comcare (2012) recommend that the information should be reviewed, analysed and ongoing assessments compared to those previously undertaken; to ensure that the employee continues to be medically competent for the role, that there is compliance to medication and that any deterioration of health condition is managed along with management of the employee's health generally.

A generally aging workforce and increasing levels of obesity within Australia are causes for concern and may contribute to underlying ill-health or health conditions that in turn increase the likelihood of a LCD (Australian Institute of Health and Welfare, 2012). The implementation of health and wellbeing programs as outlined by Cotton (2006) may reduce the likelihood of aggravating underlying ill-health or health conditions and make for a stronger and more resilient workforce better equipped to cope with their work duties and hours.

Organisations are implementing basic health assessments and screening for their workforce. In 2009, WorkSafe Victoria recommended that organisations with a pay roll of in excess of $10 million to conduct compulsory 'mini' health assessments or health checks. The health checks are part of Worksafe Victoria's Work Health initiative, which aimed to improve the health and wellbeing of workers and boost safety and productivity (Comcare 2012). Health checks look at basic health elements such as blood pressure, cholesterol, height and weight (BMI) and identify risk factors for general health. These basic health assessments were seen to assist organisations

to ensure improved health of their workforce, encourage better lifestyle options to improve their general health and fitness at home and work (Comcare, 2012). These programs were thought to ensure employer's support of their workforce and assist in reducing the cost of workplace ill-health and injury costs.

From the initial health check initiative 56,000 workers participated and data revealed that 40% of workers who received a Work Health check had one or more results indicating a high or very high risk of developing type II diabetes and cardiovascular disease (Comcare, 2012).

6.3.3.3 Use of human resource personnel

Analysis of the employee questionnaire revealed that the presence of Human Resource [HR] personnel was a protective variable to ill and injured employee's pre-incident becoming a LDC outcome. HR personnel in organisation's role are to support the business to ensure that departmental manager can perform their key operational requirements, obtaining the support of HR personnel to performance management the workforce. HR personnel have a multi-factorial role and depending upon the organisation their operational tasks will vary (Pachman, 2009).

A role of the HR Personnel is to implement HR systems to correctly and efficiently manage performance. HR personnel need to ensure the system created is not only fair and equitable but also take into consideration the individual needs of personnel throughout the organisation (Abhayaratna & Lattimore, 2006).

Analysis of employer responses revealed similar findings. Responses showed that organisations that did not have human resources personnel were moderately more likely to have a LDC (35.7%) in comparison to SDC (18.5%). Spearman correlation was conducted on the location and HR variables across the type of injury sustained at work results did not reveal that the type of

injury was statistically significantly correlated with the location or the presence of HR Personnel; however there was moderate positive correlation between the locations of the business and whether the company had HR personnel.

Therefore there is a possibility that the absence of human resource personnel could explain a higher incidence of LDCs in organisations. Human resource personnel are engaged to ensure that the right candidate is employed. It is the role of human resource personnel to ensure that candidates will be a good fit for the organisation and team; that they meet the inherent requirements of the role and that they have the skills, knowledge and experience to perform the work. Once employed, human resource personnel provide ongoing support for the business in the conducting and/or coordinating performance management, assisting in the provision of on-the-job training and other employee assistance and management functions as they arise. If an organisation does not have HR personnel support, then it is more likely that these organisations do not actively manage these functions. As a consequence they may be at greater risk of sustaining LDC outcomes.

6.3.3.4 Organisational practices

Mussett (2001), MacEachen (2013), Smith et al., (2014) and Wickizer et al., (2011) in a review of published literature identified best practice organisations and the effect that such organisations have on improved productivity, team morale and health and employee commitment. The presence and participation of HR personnel to assist organisations to implement and achieve best practice principles are a key driver the efficiencies and improved improved employee and organisational performance.

Employee ‘Fitness for Work’ is an important preventative health strategy for organisations and one that is gaining greater awareness. Stress, fatigue, impairment due to alcohol and/or prescription/non-prescription drugs, an individual’s psychological and emotional state and the

aging workforce can all have a significant impact on employee and safety management within in an organisation (Comcare, 2012).

Analysis on employee respondent questionnaires revealed that a company that had a formal induction process for outside contractors had a protective effect on the LDC outcome with an OR 0.173 (95%CI 0.036, 0.820) and formal induction for outside contractors seemed to reduce likelihood of an employee sustaining an LDC (p=0.027).

A changing cultural and social environment is causing significant challenges to industries and workplaces (Abhayaratna & Lattimore, 2006; Henson, 2009). In a business setting where the effects of the global economic environment have caused significant financial strain on the business world, equally significant strain and pressure has resulted for employees (CWA Occupational Safety and Health Department, 2001. For many approaching retirement age, the global economic crisis has caused significant financial impact on superannuation portfolios or asset creation. The decision to retire has had to be delayed for many, with individuals staying in the workforce longer (CWA Occupational Safety and Health Department, 2001). This is also a problem facing Australia, where government legislation has removed the retirement age of 65 years. Instead older workers are being encouraged to work past the age of 65 years in some occupations; while in others there is still a compulsory retirement age.

Older members of the workforce in physically and manually demanding positions can cause performance management challenges (Smith et al., 2014). Older members of the workforce unable to perform heavier or more labour intensive aspects of work, often place others at risk of injury or fatigue brought about by the need for them to perform the heavier aspects on the older worker's behalf. In turn colleagues becoming disgruntled as a result of them having to perform the majority of the heavier or more physical work can cause tension and problems in a team setting (Smith et al., 2014). Performance managing older members in this situation can be

complex due to age discrimination legislation, with no specific retirement ages established or promoted in legislation. It is essential for organisations to effectively manage these situations that arise to restore team cohesion and productivity (CWA Occupational Safety and Health Department, 2001).

The findings of this research in terms of organisational factors including safe work practices, presence of HR personnel, conducting pre-employment medicals, having job descriptions available to physicians and formally inducting employees and contractors) were found to affect the prevalence of a claim becoming a LDC.

The findings and relevant discussion on the psychosocial factor are discussed and explored in detail in the next section.

6.4 Psychosocial Factors

The third research question proposed for this research was, "Do psychosocial factors identified in the literature contribute to workers' compensation claims becoming long in duration?" The specific variables identified in the literature were as follows:

- Poor health and wellbeing;
- Job dissatisfaction;
- Negative work experiences;
- Low job control; and
- Lack of supervisor and colleague support.

The following section discusses the findings of the variables of poor health and well-being, job dissatisfaction, negative work experiences, low job control and lack of supervisor and colleague support in terms of the knowledge that this research has contributed to the effects that these variables contribute to ill-health and injury and more specifically the onset of LDC outcomes.

6.4.1 Poor Health and Wellbeing

Employees responses for individual factors of Health Status revealed that respondents perceiving themselves as having excellent health was dependent of whether an employee might be likely to have an SDC (85.7%) rather than an LDC (66.7%) at the 10% level of significance (p=0.06).

Ill or injured employee were asked if they would leave their current employer/position due to current job stress 77.2% of LDCs disagreed in comparison to 55.8% SDCs When respondents were asked if they were likely to leave their current employer/position for a better job offer 82.9% of LDCs agreed in comparison to SDCs (64.8%).

These results suggest that LDC employees may be more likely to answer that stress was not a reason to them leaving their current position. Hom and Kinicki (2001) discussed the concept of withdrawal acts protecting employees. It is anticipated that LDC respondents are provided the protection of a workers' compensation claim and due to the fact that they have been off work greater for periods of greater than 60 days the pressure to return to work diminishes. Consequently, LDC respondents are more likely to advise that stress is not a reason for leaving their position or the motivated to leave their position.

One respondent's comments also reflect this as they stated that if they had a different job, their health would probably improve, as they would locate a job that was less physically demanding and fatiguing.

Work that is rewarding is of importance to individuals and is a significant component of their lives and self-worth (CWA Occupational Safety and Health Department, 2001). When work is not rewarding or denies people the opportunity to utilise their skills and talents, it can lead to work related stress. The sources of stress can be multifactorial and can included, but are not limited to the following

- Increased workload;
- Eyestrain from staring into computers;
- Unpredictable disciplinary action by a supervisor; and
- Never being complimented about the quality of work we produce (CWA Occupational Safety and Health Department, 2001).

Young *et al.* (2004) in a study of Agricultural workers' return to work post spinal cord injury noted "contrary to expectation, those who had worked in the agricultural industry prior to their injury achieved superior return to work outcomes" (Young, Strasser, & Murphy, 2004, p. 1019). This was despite the identified problem that agricultural employees have occupations that are more physically intense and "the physical nature of farming may hinder agricultural workers returning to work post-injury" (Young et al., 2004, p. 1014).

Young *et al.* (2004) attributed a potential cause for the superior return to work post injury to many farmers are as a result "that many farmers draw strong sense of identify from their work, seeing it was integral part of their past, present and future" (Young et al., 2004, p. 1020). It was concluded that "perhaps it was this close association with their work that enables them to make gains beyond those of their peers" (Young et al., 2004, p. 1020).

Employer representatives were asked to advise how many sick leave days and annual leave days there ill or injured employees had taken in the 12 month period prior to their workplace illness or

injury. These questions were asked to gain some insight into to the health of the employee in the period leading up to the workplace illness or injury.

Analysis of the data indicate that LDCs had a statistically significantly higher mean number of sick days (20 days) in comparison to SDCs (3 days), at the 5% level of significance ($p<0.01$). Spearmans' correlation was conducted on the details associated with the injury. The number of days sick leave in the last 12 months was not correlated with the type of injury (-0.16, $p=0.98$). However, the number of annual leave days taken in the last 12 months had weak negative correlation with the Type of Injury Claim at the 10% level of significance (-0.204, $p=0.098$).

Cameron (2010) advised that within the arena of occupational health and safety, the status of health has only just begun to return to the forefront, to be recognised as an essential part of the overall management of occupational safety and health. In Chapter 3 the importance of incorporating the concepts of Health Ownership into everyday procedures, policies and practices was discussed.

Cameron's health ownership model is displayed following:

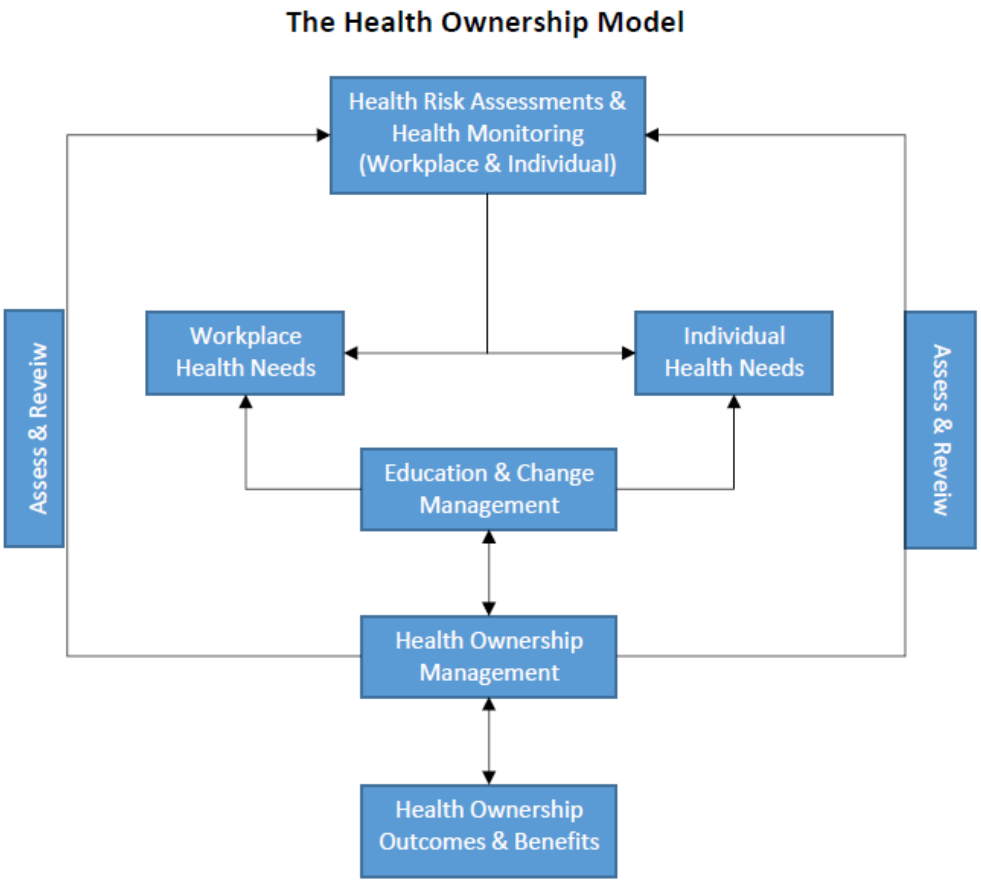


Figure 29: Health Ownership Model (Cameron, 2010, p. 63).

Cameron's (2010) Health Ownership model requires employers to active assist employees to assess and monitor both workplace and individual health needs and look to education and assist employees to bring about the necessary change to improve health. Historically some organisations have been negative or resistance to spending time and resources to assist employees improve their health, however in doing so these organisations lose the opportunity to assist their employees and the consequence that the improved health brings to the individual, their performance and the effect this has on the team.

The author has recently been assisting an organisation that has implemented the Health Ownership Model into their organisation. Individual assessments were conducted one-on-one with employees and workplace and individual risks were identified. With some employees at the outset of the program indicating that they did not see that they needed to improve their health or did they identify risks associated with their initial health.

Once the assessments were conducted individual targets and health/exercise programs were developed. Physiotherapists / personal trainers were available to assist individually tailor programs and training and instruction was provided to the employee on the exercises to be conducted. Ensure good technique and eliminating the risk of injury from performing the exercises.

Every 4 weeks ongoing assessment and monitoring was conducted with the physiotherapist / trainer attending site to monitor the individual goals.

As a consequence of the implementation of the Health Ownership Model the organisation arranged activities prior to work and after to collectively work together to help team members achieve their individual goals. Instead of individuals going for a coffee or a drink after work, with the implementation of the health ownership model employees would meet in the gym for a bike ride or go for a walk.

Given the positive benefits that were being achieved from the program weekend trekking and camping excursions were arranged and team morale and cohesion were and unexpected benefit from the program.

During the one-one-one follow up sessions a series heart condition was detected in an employee and within 5 days of the condition being detected the employee received open heart surgery.

At the 4 month stage of the program the average weight loss was 7.9kg, a change to BMI of 15% across the group and a drop in waist measurements of 10cms on average.

From an organisational level, productivity and production increased 3 fold, safety adverse incidents for the period were at the lowest for the organisation and as a consequence of the organisations improved performance and excellent customer feedback further work was award to the organisations.

For this organisation the implementation of a Health Ownership Model far out-weighted there initial investment in to the program and the program continues within the organisation.

A number of authors [Cotton (2006; 2009; 2003), Health Safety Executive (2006) and Heaney (1993)] highlight the importance and need for employees to have good health and wellbeing to maintain resilience to meet the challenge of the day-to-day working and working environment. Organisations implementing health and wellbeing programs and more specifically adopting a Health Ownership model are not only safeguarding the effects of ill-health and injury, but also reaping the benefits that health and a more productive workforce.

6.4.2 Job dissatisfaction

The employee questions asked employee respondents to provide their opinion on a number of practices that existed prior to the workplace ill-health or injury. Employee were asked if organisations consulted with their employees in relation to decisions; if employees were respect, if employees perceived that their performance was fairly assessed, satisfaction with working hours, satisfaction with their work team, their relationships with supervisors, if the organisation

was perceived a good place to work and where the organisation provided employees all the information to perform their role.

These questions were asked to identify employees overall satisfaction with their employment. It was proposed that LDC claimants would be more likely to be dissatisfied with their responses in comparison to SDC respondents.

Analysis with both Z-test of proportions and Chi-square analysis at the 5% level of significance failed to show differences between SDC and LDC respondents.

These findings are in direct contrast to the findings of literature review conducted. Schultz *et al*. (2002) that psychosocial factors contributed to the inability of employees returning to their pre-injury role and longer timeframe comparative to those employees whose employment did not demonstrate the same psychological factors. However it is possible that with a larger sample size an association could be identified.

Shaw et al. (2009) in the Working Group identified seven workplace variables as being of significance to disability and duration of disability. Of these factors include job satisfaction or lack thereof was identified as a causal factor to preventing resuming to work and fear of re-injury.

Gawel, (1997) reviewed Hertzberg (1959) theory and found five strong determiners of job satisfaction, these being achievement; recognition; the work itself; responsibility and advancement. Employees who sustained an LDC where less likely to demonstrate these behaviours and characteristics and as such are inconsistent with the findings of this research.

In this research the employer questionnaires reviewed psychosocial factors and results were analysed using the Pearson Chi-square test. Type of Injury was reviewed with the following psychosocial variables:

- completion of duties,
- full responsibilities,
- provide solutions,
- help problem solve,
- motivated to learn,
- work does best,
- follow instructions,
- respected, and
- performance management.

If an employee was satisfied with their job then it would be expected that employer responses would indicate that the employer's views of these variables would be inversely correlated for LDC claimants.

Analysis of the results revealed that type of injury and specifically incurring an LDC claims was inversely correlated with all "Employer Views of their Employees" variables. Spearman's correlation test determined that the type of injury was inversely correlated with the worker always completes the duties the worker fulfils all responsibilities required by their job; the worker generates original solutions to problems; the worker always does their best, the worker is motivated to learn new skills; the worker always follows instructions & directions from superiors; and, the worker is well respected by their team.

Employee comments also reflect these findings. A LDC respondent stated that although the employee consistently stated to doctors that she was not able to participate in the alternative

duties identified, she was seen by other staff on a number of occasions to be in a completely healthy manner, indicating that the employee had the capacity to be at work performing the alternative duties identified. The employee was advised that her performance was not good on a number of occasions before the injury and her employment was to be terminated.

A further employer respondent commented on their questionnaire that an employee could not return to work performing alternative duties, however was able to compete in sporting events that would indicate that they did have a capacity to return to some form of employment with the employer.

Upon conducting binary logistical regression it was determined that the employer deemed the completion of duties as having a protective effect on LDC with an OR 0.39 (0.18, 0.70) at the 5% level of significance, p=0.003. This suggests that if an employee was productive and completed all the tasks required of them and their job description, they were less likely to have a LDC claim in the event that they were ill or injured as a consequence of their employment.

It would be expected that employees who were not able to meet the physical demands of the job, who did not have a good fit (Lee-Kelley, 2006) with the job or team, had poor relationships with supervisors or colleagues (Karasek et al., 1982; Katz & Kahn, 1978; MacKay, Cousins, Kelly, Lee, & McCraig, 2004) might in part be less likely to be able to complete all of the duties associated with their role due to the conflict and challenge with the nature of their work.

Although not determined as significant, employees who (as reported by their employers) were being performance managed were more likely to have a LDC. SDC claimants who were performance managed represented (20%) of respondents in comparison to LDCs that represented (49%). Whilst this variable was not determined as significant upon data analysis there was notable contrast to the reports of employers who had employees within their workforce with a

SDC. It is foreseeable that employees who are being performance managed for issues that may include; not being able to meet the inherent requirements of the job; conflict with work team/s or supervisors; or poor attendance at work; were more likely to have a LDC as a result of a work related illness or injury.

Murphy *et al.,* (2002) discusses organisation citizenship behaviour [OCB] as introduced by Organ in 1977. OCB is defined as "behaviours of a discretionary nature that are not part of an employee's formal requirements, but nevertheless contribute to the effective functioning of an organisation (Murphy, Athanasou, & King, 2002, p. 288). Murphy *et al.* (2002) conducted research to explore the relationship between OCB and job satisfaction. The research was conducted on staff from a special developmental facility in Melbourne. "Most of staff held qualifications in in special education and/or health services, the duties of the professional staff were to plan and deliver training via programs that are specially designed to and tailor made to suit the needs of the individual students" (Murphy et al., 2002, p. 289). The OCB activities that the staff engaged in were arranging activities associated with the school fetes, attendance at social events and involvement in committees.

The results of Murphy *et al.* (2002) indicate that OCB was correlated with self-reported job satisfaction and by peer's assessment as it correlated with the behaviours that the individual performed to constitute the organisational citizenship behaviour. Job satisfaction is therefore an important variable to organisations to ensure employees meet job role requirements, but in accordance with the work of Organ (1988) and Murphy *et al,* (2002) job satisfaction can be a powerful motivator that can cause employees to work in excess of an employee's job role and perform additional voluntary work related acts.

6.4.3 Negative Work Experiences

Employee respondents were asked their views on a number of variables to gauge whether the employee expressed negative views about their employment and organisation. It was envisaged that by asking ill or injured employees about variables that existed prior to the workplace incident causing their ill health and injury that it would be able to determine if the employee experienced negative work experiences. It was predicted that LDC claimants would be more likely to disagree with the questions ask, confirming that they experienced negative work experiences.

Employees were asked if workplace management and employees got on well together, if the relationship with the supervisor was effective, if the employee was treated with respect by managers, if the employee's performance was fairly assessed and the employee's views on whether the organisation was a good place to work. Data Analysis and testing revealed no significance and no dissimilarity across SDC or LDC groups for factors that negative work experiences and voluntary turnover

Employer respondents were asked the views on whether an effective relationship existed with the employee, whether the employee was motivated to learn, if they always did their best, were well respected within the organisation, followed instruction, completed the majority of their duties, identified solutions to problems, help problem solve and if they failed to perform essential duties. It was predicted that LDC claimants would be more likely to have experienced negative experiences at work and consequently would be less likely to receive positive feedback from employers in relation to these questions. Table 52 displayed in Chapter 5 provides the results to these questions. Results revealed no association between the variables of type of injury claim and effective relationship and fail to perform duties.

Associations were found between variables of type injury and completion of duties, full responsibilities, provide solutions, help problem solve, motivated to learn, always does their best, follow instructions, and respected.

Cotton (2003) advises that an employee's job satisfaction is similar to weighing up the positive and negative experiences they have had at work. Positive emotions towards work are known as 'morale', and involve energy, enthusiasm and pride. Negative emotions involve guilt, anxiety and anger and are also known as 'distress" (Cotton & Hart, 2003). If employees are distressed they are more likely to demonstrate signs of withdrawal behaviour and are at risk of becoming a LDC.

Cotton (2006) expands this discussion and explains that when a person feels stressed at work, it may be due to the employee's lack of positive experiences rather than a series of specific negative problems. A worker, for example, might feel that their work is pointless, they might lack social support and recognition and therefore they do not feel enthusiastic or confident at work, leading to feelings of stress and difficulty coping with small problems. In this case, targeting specific negative experiences, or trying to solve the little problems, might not be any help. Instead, a broader approach would be needed to address the underlying issue of why the person is not happy at work and how the workplace could foster a more supportive environment (Cotton, 2006).

6.4.4 Low Job Control

Heaney *et al.* (1993) advises that job control determines how much or how little control a worker has over her/his job. This can be defined in terms of one's ability to make decisions about how work is done and the ability to use a range of skills on the job. Job demand determines how much or how little production or productivity pressures there are on the worker and the quality of the physical work environment (Heaney et al., 1993).

Ill or injured employees were asked to ask provide their views of whether their organisation allowed them influence over their work and whether their organisation consulted them over things that directly affected them. It was perceived that LDC claimants may advise that they had little influence over their work or their organisation did not consult them over things that directly affected them.

Employer respondents were asked their views on whether the employee identified solutions to problems and help problem solve prior to their workplace incident. These questions were asked the measure if employees showed initiative and expressed desires to participate in their role and to conduct comparisons between responses of employee respondents.

Data analysis results identified associations between the variables of Type Injury and provide solutions; help problem solve. Questionnaire analysis results suggested that LDC claimants were less likely to participate in improving aspects of their role and position. This can in part be explained by the research of Hom *et al.* (2001) and Cotton (2003) whereby employee withdrawal from the workgroup and work environment as a means of coping with the friction caused due to the dissatisfaction with their role and the dissatisfaction and effects on health that may results.

From the literature review Heaney *el at*., (1993) identifies that working conditions or stressors are associated with two job characteristics: job control and demand (Heaney et al., 1993). A number of have studies [The University of Queensland, (2009), Cotton (2003), (2007) and (Cotton 2009)] found positive effects of participative management, concluding that employee participation will help to improve performance and job satisfaction. Allowing employees autonomy to structure and control how and when they do their particular job tasks improves positive emotions (Heaney *el at*., 1993).

Spector's research outlines that a high amount of autonomy allows employees to determine the order and pacing of job tasks; the specific procedure for completing the task; scheduling; coordination with other employees and other conditions of work, in turn enhancing performance and job satisfaction (Spector, 1986). This is also supported by the research of (Alfredsson, 1983). Alfredsson found increased demand is harmful when environmental constraints prevent favourable coping skills in order to meet the demand (low control) or when coping with demands does not increase the possibility for growth and development. Employees who report this combination of factors in their job have an increased chance of fatigue and depression.

Astrande (1989) and Hoogendoorn et al. (2000), discussed the effect of hectic and psychologically demanding work with low decision latitude (low autonomy/control). The combination of psychosocial factors resulted in mental strain and cardiovascular morbidity and mortality (Astrande, 1989). The research concluded that demands on health can be moderated by the degree of control the employee has over their work. A combination of high work demands and low level of permitted discretion in the control of one's own work becomes *a significant risk* for ill health.

Alfredsson (1983) and Belkic *et al.* (2004), investigated the effects of shift work on the risk to Myocardial Infarction and the combination of variables that are associated with low decision making in the work place. Alfredsson found that jobs with few possibilities for growth can also be associated with a high risk of heart attack and that stressful jobs can accelerate the occurrence of heart attack. Alfredsson (1983) and Belkic *et al.*, (2004) research investigated five variables that were found to result in a stressful job causing heart attack, these being:

- Job Demand – overtime, shift work, *financial stress,* hectic work increases *and* associated risk;
- Control and growth;
- Physical – sweating, manual work, noise and vibrations;
- Employee Wellness and background – educational and cultural background, smoking and

gender;

- All the above combined (Alfredsson, 1983).

6.4.5 Lack of Supervisor and Colleague Support

In conjunction with the questions asked of ill or injured employees relating to their supervisor, respondents were also asked to provide their views on their satisfaction with their work team. It was predicted that LDC claimants would be more likely to be dissatisfied with their work group.

Where employees lacked the motivation or were not engaged with their employment or were described as not performing at their best, it is proposed that the organisation may not provide a well structured environment in terms of supervisory or colleague support. Further if employees are not seen to be respected by their team that a supportive colleague network did not exist (The Australian Institute for Social Research, 2010; Center for Disease Control, 1986; The IUA/ABI Rehabilitation Working Party, 2004).

The information obtained from the literature and the analysis of the data was used to identify factors that contribute to the onset of workers' compensation claims and more specifically LDC outcomes. The information obtained from the literature and supported by the results of the data analysis was used to develop and now discuss the Causal Factors that lead to the onset of workers' compensation claim and specifically LDC outcomes.

6.5 Research Strengths and Weaknesses

6.5.1 Strengths of the Research

The binary regression of the employee questionnaires revealed that the odds ratios of selected exposures on the Type of Injury classifications revealed that variables had a protective effect on LDC outcomes.

The ROC curves analysis and the subsequent Area Under Curve results determined that the variables used for the Employee model regression which included “self-perceived excellent health”; “employment contract status”; “whether outside contractors were formally inducted”; “workplace management and employees get on well together”; and “whether a better position/offer (would be a factor in me leaving my job)”) indicated that this model was a good predictor of LDC outcomes [AUC 0.807 (95%CI 0.702-0.913)].

Likewise, the variables used for the employer model included “HR Personnel”; “Job description provided to medical professional at pre-screen”; and, “completion of duties”) were equally a good approximation of determining LDC outcomes [AUC 0.790 (95%CI 0.666-0.913)].

6.5.2 Research weaknesses

The response rate for the survey was low and the researcher was unable to contact participants to remind them to participate in the researcher, or encourage their response. As outlined previously due to Privacy Act (Commonwealth) 1988, participating insurers and employers required to distribute the survey in a blind manner.

A total of 71 employee responses and 68 employer responses were received, despite a total of 1955 questionnaires being provided to the various third parties that distributed the questionnaires. The low number of questionnaires returned and the resulting small sample, denied the results and findings of the data analysis greater weight and credibility.

This research required prevalent claims or rather claims whose injury may have occurred in the 2 year period prior to this research being conducted. The research required a period of greater than

60 days prior to the onset of the injury or illness to occur for an LDC participant to be included in the survey. The use of prevalent cases can case can cause 3 major problems for investigations.

Inferior recall occurs due to the delay associated with time prior to injury and completion of the questionnaire. This results due to the fact that the time of prevalence is more distant in time of exposure to time of incident.

Inferior recall, since exposure history may have changed as a result of and subsequent to disease incidence. The final identified problem is relationship of exposure to survival. Since, prevalence data are length biased with regard to survival, exposure frequencies will differ between incident and prevalent cases, leading to bias. (Begg & Gray, 1987). This does not relate to this research as ill or injured employees do not die and the period from time of incident and completion of the questionnaire is a period of between 60 days to approximately one year for long-duration workers' compensation claims and less than 60 days for short duration claims.

The first two issues relate to the quality of the data being collected and was protected in this research by designing the questionnaire in a manner than obtained very simple facts for example did the worker have a pre-employment medical prior to starting employment with the company.

The literature review and research demonstrates that there is an industry practice where the many ill or injured workers who perceive that their injury is not of significance do not lodge workers' compensation claims. Rather such workers will access leave entitlements to cover periods of incapacity. For example, in 2013/14 in Australia 66% of people who reported a work related injury or ill health (326.100 people) did not apply for workers' compensation (Australian Beureau of Statistics, 2014).

If all claims are reported and lodged as workers' compensation claim, better knowledge and information can be collected on the true and correct injury and illness figures. This practice was not adjusted for this phenomenon, and therefore a skew in the data and results may be present. It is hoped that with greater knowledge and education, employers and their ill and injured employees will look to lodge all claims even if the work-related injury or illness does not result in any time away from the workplace.

6.6 Summary

The results of the research findings from the employee questionnaire revealed that a number of variables were significant. In determining which employees are more likely to become LDC claims. Specifically the individual factors found to be significant were lower limb and upper limb injuries appeared to exhibit differences across SDC and LDC groups.

In terms of the health questionnaire, results revealed respondents perceiving themselves as having excellent health was dependent of whether an employee might be likely to have an SDC (85.7%) rather than an LDC (66.7%) at the 10% level of significance ($p=0.06$).

Analysis of Organisational factors found there clear differences in the proportions of injury type (SDC and LDC groups) for employment status. Responders with permanent/full time contracts were more likely to experience and SDC rather than LDC) and responders on other forms of contracts were proportionally more likely to become an LDC claimant rather than a SDC claimant.

Further the involvement of Safe Work Practices revealed that there were differences between the LDC and SDC respondents. Testing of the variables of attending a pre-employment medical, and

being formally inducted determined that having a pre-employment medical were protective on the occurrence of a LDC.

The psychological variables that were associated with a difference in the Type of Injury classification was how the participant rated whether they “Feel successful at work when I do my best”. SDC claimants were more likely than the LDC claimants to “disagree” with the statement “I feel successful at work when I do my best”.

Employer’s whose employee had an LDC had a statistically significantly higher mean number of sick days (20 days) in comparison to SDCs (3 days).

The psychosocial factors for the employer responses were analysed test found associations at the 5% level of significance between Type of Injury and psychosocial variables including; “Completion of duties”, “full responsibilities”, “provide solutions”, “help problem solve”, “motivated to learn”, “work does best”, “follow instructions”, “respected”, and “performance management.”

The research questions formulated at the commencement of the study show the majority of variables identified were either statistically significant and variables listed or ben shown to be proportionally different or have a correlation of significance. In the following chapter the preventative model displaying the causal factors that contribute to ill-health and injury and more specifically LDC claims is explored.

7.0: Developing Causal and Prevention Models for LDCs

This research and its findings provide an introduction into the primary prevention of LDCs at the most essential point of the evolution of the claim and injury – prior to the workplace injury or illness occurring. An initial causal model was developed following the literature review and the following discussion will further explore the causal model based on the outcome of the data analysis and findings of this research.

The second Model developed based on the findings of this research and discussed in this section is the Model of Management for the Prevention of LDCs. The third Model developed based on the literature review and the findings of this research described in this section is the Green Flag Model.

7.1 Introduction

The causal model was created identifying contributing factors for the onset of job dissatisfaction and job avoidance and specifically may result in long-duration workers' compensation claims. This proposed model is illustrated below. . This model enables a clear picture to be developed of where interventions should occur to minimise job dissatisfaction/ job avoidance to present, or minimise the occurrence of long-duration workers' compensation claims when there is not an obvious underlying pathology.

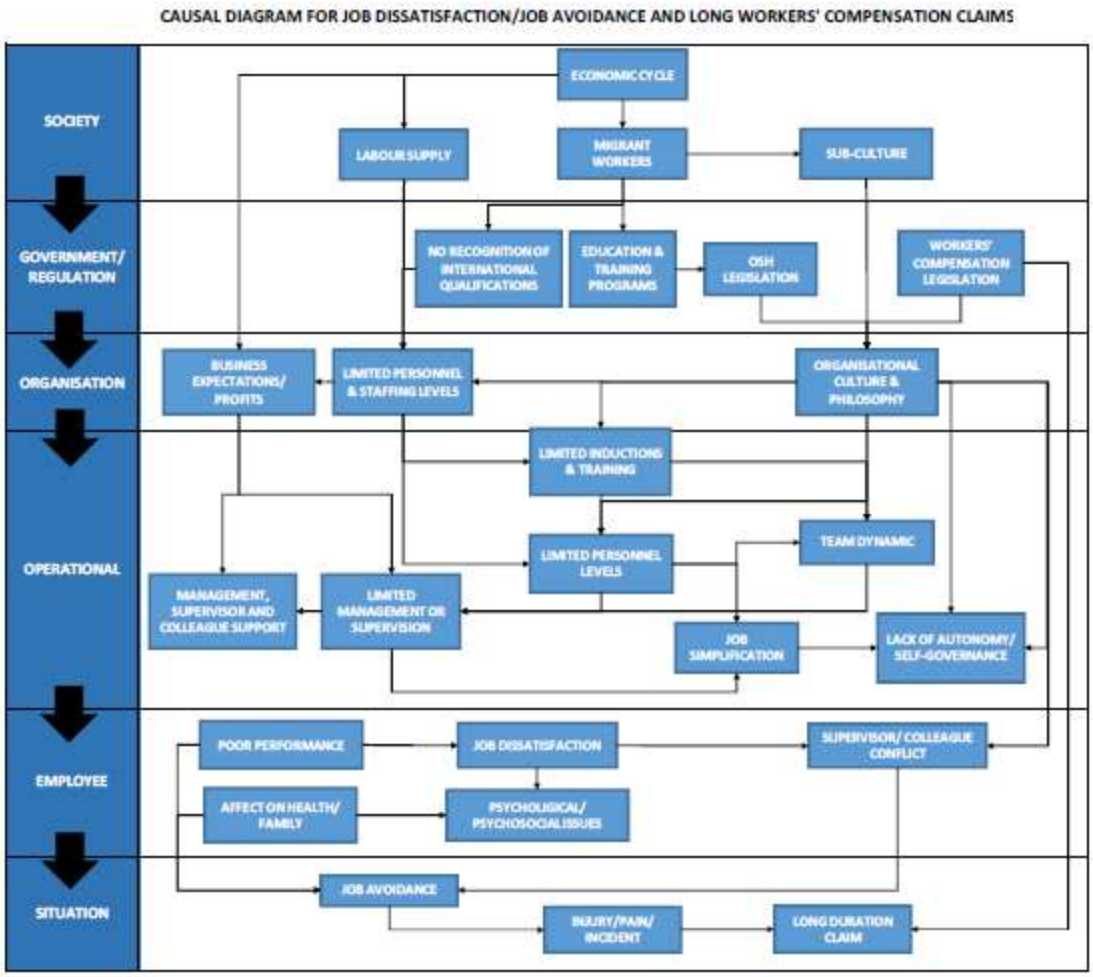


Figure 30. Causal Diagram for Job Dissatisfaction / Job Avoidance and Long-duration Workers' Compensation Claims

The model proposed has five layers containing the identified characteristics, these layers being:

- Societal (level 1);
- Government/ Regulatory (level 2);
- Company (level 3)/ Organisation (level 4); and
- Employee or Individual (level 5).

Further information on the various levels and how the onset of workers' compensation claim can impacted can be located in Appendix 6.

7.2 Job Avoidance, Injury or Illness and Subsequent Workers' Compensation or LDC claim

According to Hom and Kinicki (2001) incumbents who perform withdrawal acts such as reducing work output, productivity, participating in group activities or absenteeism, do not quit their employment because the alternative acts help them to adjust to job frustrations.

From the literature review it is evident that a number of research and studies have highlighted the withdrawals of employees as a coping method to frictions and frustrations resulting from their employment (Cotton, 2006; Cotton & Hart, 2003; Health Safety Executive, 2006). The literature review was unable to locate studies or research on withdrawal acts and the effect that this had on workers' compensation claim becoming long in duration.

In this research it was proposed that withdrawal of employees was of major significance to workers' compensation claims management and that if the employee was then to become unwell or injured that the workers' compensation was a form of withdrawal. If employees are dissatisfies with their employment and work prior to their injury, the injury itself may be a catalyst to job avoidance and withdrawal from their employment.

Another model that was developed based on the literature review and research findings was a model of management for the prevention of LDCs. Further information on the Model of Management is discussed below.

7.3 Model of Management for the Prevention of LDCs

The flags model was introduced to assist, reduce and prevent the escalation of illness and injuries, post incident. Whilst the flags model has proven to be of success, it does not assist in preventing illness and injury from occurring. The answer to addressing the escalating costs associated with long-duration claims lies with preventing, where ever possible, long-duration claims from occurring. To achieve this, it was hypothesised that adapting the flags model to incorporate individual and organisational factors, that are seen to be integral to the onset of illness and injury in the workplace, was required.

This preventative model incorporates sound management of employees, and organisational operations and is linked to improved occupational health and safety awareness. The model looks to prevent and reduce the effects of ill health and injury from occurring as a result of the day-to-day effects of work itself and the organisational design and makeup.

The following model of management has been formulated based on the findings of the data analysis, literature review and from knowledge gained through working with the organisations reducing the effects of ill-health and injuries and more specifically LDCs.

The following diagram below was designed to visually summarise the Model of Intervention and represent the discussion throughout Appendix 7 to outline preventative injury and ill-health in organisations and more importantly the prevention of long-duration workers' compensation claims.

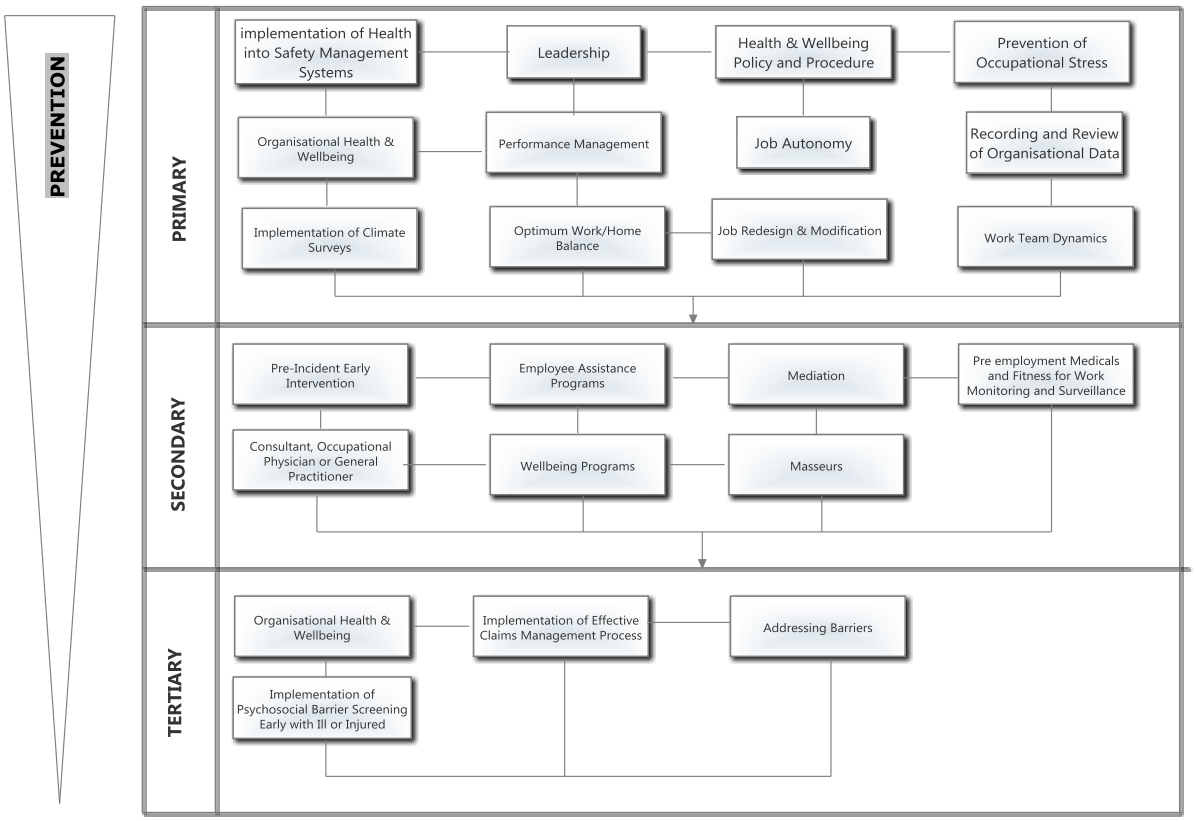


Figure 31 – Model of Management for the Prevention of Long-duration Workers' Compensation Claims

Recommendations on the stages of implementation for this model are located in Appendix 10 and the various elements of the model are included in Chapter 8. The recommendations in Appendix 10 have been developed using the author's history and experience working with organisations to implement systems to manage ill-health and injuries in the work place and prevention further ill-health and injuries.

7.4 Pre-Incident Flag or Green Flag

From the literature review it was identified that a number of factors were potential causes to the incidence of workers' compensation claims becoming long in duration (see Table 19). As a consequence of the findings of this research and in conjunction with the information obtained from the literature review the following flags model has been amended and factors found not to be significant in this research have been removed. These flags, referred to as Green Flags are pre-incident variables identified and determined by this research to contribute to ill-health and injury, the onset of workers' compensation claims and specifically claims becoming long in duration.

Table 57: Green Flags or Pre-incident Flags contributing to the onset of injury and illness and duration of incapacity.

Green Flag Characteristics	**Level of Statistical Significance**
An employee who is more likely to be an LDC, will demonstrate the following characteristics:	
• history of mental health problems ;	Statistically Significant
• job dissatisfaction;	Statistically Significant
• problematic relationship with co-workers and/or supervisor;	Statistically Significant
• history of poor attendance or absenteeism;	Statistically Significant
An organisation employee who is more likely to be an LDC, will demonstrate the following characteristics:	
• Contract of employment where the employee is engaged other than permanent;	Statistically Significant
• Lack of HR of personnel;	Statistically Significant
• Do not conduct pre-employment medicals;	Statistically Significant
• Do not formally induct their employees or contractors;	Statistically Significant
• Do not have job descriptions for their employees;	Correlation
• Organisation has a lack of supportive organisational culture.	Implied from the results of the research

The findings of this research indicate that the majority of the characteristics identified were determined by this research to be statistically significant. It is therefore proposed that from the results and findings of this research that the Green Flag should be considered and further testing conducted to continue to test and add to the knowledge that has resulted from this research.

New knowledge and research has continued during the period of this research and as such new theories and inclusions to the Green Flag Model have been necessary, despite it now being included in the initial employee and employer questionnaire. This relates to union membership and employee's coping skills. This is supported by the research of Shaw *et al.* (2009).

Variables including level of physical support and physical demand, low skills discretion, poor co-worker support, high job demand and low control and autonomy were not found to be significant in this research. Due to the poor response rate for this research and the low levels of respondent data, it is the author's belief that these variables should continue to be present in the Green Flag Model.

It is hoped that further research into the Green Flags and knowledge on these variables causal link to ill-health and injury pre-incident will continue to occur and provide greater clarity on these variables and their impact on LDC outcomes.

7.5 Summary

The Green Flag model developed from the literature review and from the findings of the statistical analysis has been determined to be robust given that the majority of the variables in the model were of statistical significance in the results of this survey.it.

It is anticipated that results and findings of this research open up new avenues for greater learnings and knowledge on the reduction and/or prevention of both workers' compensation claims and more importantly LDCs. It is hoped that further research

will be conducted on the prevention of LDC by using the knowledge and model utilised in this research on greater sample sizes so that further evidence and data can be obtained.

This knowledge and learnings can also be applied to the prevention of non-work related ill-health and injuries with further research and knowledge. It is hoped that this will occur to reduce the effects of individual ill-health and disability.

It is anticipated that the model of management developed based on the findings of this research when implemented by organisations will assist with the prevention of the incidences of workplace ill health and injuries and more importantly LDC outcomes. The next chapter provides the research conclusions and recommendations base on the research findings.

8.0: Conclusions and Recommendations

8.1 Introduction

The aim of this study was to examine, pre-incident and pre-claim variables including individual, organisational and psychosocial factors that existed prior to the onset of the illness and injury to identify if these contributed to a workers' compensation claim becoming long-duration.

The literature review identified that there was significant knowledge on the prevention of ill-health and injury post an incident occurring which had been assisted in part by the Task Force Groups and the knowledge created by this. It was the author's desire to establish if this knowledge could be adapted to look at the prevention of ill-health and injury prior to the incident occurring given that it was evident that the variables post injury that created long term disability, would have been in existence prior to the incident, ill-health or injury occurring.

Informed with the results of the data analysis and literature review conclusions, a model of management was compiled to assist organisations with the reduction, and hopefully prevention, of LDC outcomes utilising primary, secondary and tertiary methods of preventions. The model of management developed is located in Appendix 10.

The causal model that was created (see Figure 30 page 265) shows the influences on the development of workers' compensation claims and specifically LDC at the various levels. These levels include society, government and regulatory authority, company, organisational and employee. This research specifically looked at gaining clarity of pre-incident variables at the company, organisational and individual levels, to allow primary methods of prevention of workers' compensation claims and LDC outcomes. It is the author's conclusions that it is at the company, organisational and employee level that the greatest impact and influence on the prevention and

reduction of ill-health and injury, the lodgement of workers' compensation claims and LDC outcomes can occur.

This research was conducted as an innovative research study to gain further evidence on the importance of the prevention of pre-incident individual, organisation and psychosocial factors to the onset of ill-health and injury and the ultimate lodgement of a workers' compensation claim in the event that an employee does sustain a work-related illness or injury.

8.2 Conclusions

The conclusions of this research identified that pre-incident individual, organisational and psychosocial factors were factors that contributed to workers' compensation claims becoming long in duration.

From data analysis the specific findings for the individual, organisational and psychosocial factors that were found to contribute to workers' compensation claims becoming long in duration were the employee individual factors of health status; the organisational factors of type of employment contract, level of employee engagement, supervision and organisational practices; and the psychosocial factors reported poor health and well-being, lack of supervisor and colleague support. Factors that were not found to be significant to respondents having long-duration workers' compensation claims included the cultural background (place of birth), employee's age and family commitments and the organisational factor of low job control.

Conclusions from the data analysis and the findings of this research are that the majority of individual, organisational and psychosocial factors identified in both the employee and employer research questions are predictors for LDC outcomes and that the research aim has been met.

From the questionnaire data analysis and literature review it was concluded that a number of variables associated with the flags model did not occur as a result of a workplace injury or incident, and in fact existed prior to the workplace incident. These variables whether a result of poor management or a lack of management by the organisation continued to manifest to the point that the workplace incident was a catalysts that allowed employees to withdrawal from the workplace and created adversely disproportion outcomes [ADO's] as outlined by the IAB/UBI (2004). Based on a review of published literature a new green flag model (in Table 19 of the report) was created to assist organisations identify employees or organisations at risk of incurring LDC outcomes, in part to assist with the prevention of LDC occurring.

The results of this research provides evidence that the prevention of workers' compensation claims lies at the primary level of prevention, where the factors that contribute and lead to the pre and post illness and injury are eliminated entirely. This theory developed from the findings of the research provides further evidence to organisations about the importance of individual and tailored management of individual employee's health and wellness and the need to ensure organisations' system cater to the specific needs of individual rather than the collective needs of the group.

The concept of employees withdrawing from their employment and methods of timely identification and prevention of this behaviour is an essential catalyst to businesses to reducing the effects of ill-health and injury in the organisation. Reviewing absenteeism records, liaising with employees to identify causes for the absence and assisting employees improve their health and wellbeing are vital ways organisations can make a significant difference to the efficiency of the individual and the organisation as a whole.

8.3 Recommendations

8.3.1 Recommendations arising from the Research Findings

The following recommendations are made for pre-claim prevention of long-duration workers' compensation claims.

- Health status was found to be a variable of statistical significance in this research. It is essential for organisations to invest in assisting and improving the workforce health including good mental health, encouraging behaviours such as healthy eating and exercise to ensure that the workforce are less at risk of becoming a LDC. Cotton, (2006) identified that the investment of health and wellbeing programs for the workforce had led not only to a reduction in costs associated with workplace ill-health and injury, but has also lead to increased job satisfaction, morale and productivity.

- Terms of Employment was found to be a predictor of LDC outcomes. It is recommended that organisations consider the engagement of their workforce and where possible look to engage employees on permanent contracts of employment. In doing so employees will be provided the benefit of job security and consequently look to reduce the incidence of LDCs in the organisation. The benefits of job security were previously discussed and highlighted (Young & Murphy, 2002, Industrial Relations Victoria, 2007, Hofstede & McCrae, 2004; Manning, 2010; Safe Work Australia, 2011b, Reid et al., 2014). Murphy *et al.* (2003) noted that employment status was related to the individual's sense of wellbeing.

  Additional benefits from looking to engage employees on permanent contracts of employment in comparison to other forms of employment may lead to increased productivity, improved morale and perhaps to behaviours consistent with organisational citizenship.

- Organisations are recommended to invest in corporate climate surveys to gain an understanding of employee's perceptions on organisational practices

including management and supervision, job satisfaction, reported health and wellbeing status and withdrawal behaviours. This exercise will gain valuable information on employee's perception of the organisation and identify employees at risk of ill-health and injury and more specifically LDC outcomes.

- Organisational Health and Wellbeing – health ownership model (Figure 29) is recommended to be used by organisations to promote organisation practices that lead to a reduction in work related ill-health and injury, particularly due to psychosocial causes, and to create a culture of caring for employees and contract workers.

- For employees in an organisation where health and wellbeing programs are implemented, it is recommended and encouraged that employees engage in such initiative and look to gain benefits from the programs. Benefits of participating in health and wellbeing programs for employees are have been outlined by Cotton (2003) and include voluntary performance consistent with organisational citizenship behaviour which include dedication and making an effort, volunteering to do tasks, helping others in the workplace and promoting the organisation to other people.

- It is recommended that employers use the knowledge and information acquired from the Green Flag Model to implement strategies to prevent ill-health and injury in the workplace and LDC outcomes.

- It is recommended that the Government look to conduct reviews of employers who use Migrant workers. Such reviews should ensure that migrant workers' terms and conditions of employment are correct, that organisational practices including the management of occupational safety and health practices are sufficient to prevent the incidence of ill-health and injury and that sufficient training and education are provided to migrant employees, preferably in their chosen languages so that they understand the training and

build competencies to perform their work efficiently and safely. Training on migrant worker's rights and entitlements is essential to ensure that legislative entitlements are understood, practiced and do not place migrant workers at significant disadvantages.

- Employees are recommended to look for support and assistance in the organisation that is available in the event that they are experiencing problems with colleagues, supervisors, job satisfaction or a lack of engagement with their role or employment. A form of support that should be available to the majority of employees in organisations is Employee Assistance Programs (EAP). Seeking the assistance of an EAP Counsellor will assist the employee to look at techniques to reduce the distress and discontent that results, assist with developing strategies to address the causes of the discontent and look to assist with preventing the problem escalating to the point that the employee becomes ill or injured. It is encouraged that employees, if unhappy and discontented with their role, working conditions, management or other associated factors arising from work that they seek advice. Once armed with the information on the employee's rights, options or entitlement meet with management to ensure that the problem is discussed, negotiated and managed and resolved in its entirety. Alternatively, methods of assistance, to using an EAP, can be government based authorities such as WorkSafe, WorkCover, Fair Work Australia or unions.

- Where employees are unhappy with the role, the work performed and lack the motivation or reward to continue to perform the role, employees are recommended to discuss alternative job options that may exist with the organisations or alternatively look to seek external employment. This will prevent the onset of further discontent, job dissatisfaction, negative experiences about their role and the organisation, withdrawal behaviours and ultimately ill-health and injury that may result.

- It is recommended to implement the Model of Management for the Prevention of Long-duration Workers' Compensation Claims that is included in Figure 31 (located page 268). Instructions on using the 4 stages of strategies for using this model of management are included in Appendix 10.

8.3.2 Recommendations arising from the Developed Model of Management

Organisations are recommended to move to a sophisticated model of management were their employees are not only health and well, but move beyond this to where their employees are flourishing. If employees are flourishing in an organisation the benefits to the organisation will be exponential. Improved organisational culture, improved productivity and profitability will be achieved. More importantly ill-health and injury from workplace health will be not only reduced but eliminated. The model of management to prevent LDC was provided in Appendix 10. The following recommendations in relation to using this model assist with the prevention of ill-health and injuries in the work place and more importantly reduce the occurrence of LDC outcomes.

8.3.2.1 Primary Prevention

The first level of the model of management is primary prevention. Following are the recommended strategies to use to achieve primary prevention.

Implementation of Health into Safety Management Systems

Based on the findings of this research, in order to ensure that health is implemented successfully into safety management systems, the following core principles are recommended to be adhered to:

1. Conduct research into the health of the organisation and the health of employees. Establish the current levels of health for the organisations teams and employees;
2. Explore the impact of employee dynamics, team dynamics and culture on the organisational wellbeing;
3. Investigate the current levels of distress, morale and job satisfaction of employees and teams;
4. Analyse the results of investigations and formulate strategies aimed at improving employees and team's health to achieve reduced levels of distress, improved morale and job satisfaction.

Leadership

Supervisors and leaders are vital to the health and wellbeing of the individuals who work for the organisation and also the organisation as a whole, the following resources should be committed to make effective leaders:

1. Understand the dynamics of the organisation to ensure suitably experienced and skilled leaders to manage departments and the team;
2. Invest heavily in supervisor and leadership training to match the needs of the organisation and the relevant teams; and
3. Look at funding training on topics such as resilience training or similar.

Health and Wellbeing Policy and Procedure

Health and wellbeing policies and procedures in the workplace make good business sense. Employees who are active and fit cope better with the day-to-day requirements of work on their health – including manual handling.

The following should be considered by organisations:

1. Look to implement health and wellbeing programs at the workplace, these programs should be aimed at the specific needs of the employees, the team and the physical demands and risks associated with the work being performed. This can include but is not limited to general health information, exercise and stretching, diet and nutrition, quit smoking campaigns, stress management and other topics relevant to that work place and work group;

2. Ensure that the programs implemented are realistic and sustained over a period of time to ensure effectiveness and uptake from all employees.

Prevention of Occupational Stress

Stress related problems can last far longer than the time spent at work and are not easily left behind at the end of the day. Analysing working conditions as a primary source of stress is an important first step in overcoming this, especially given the long-term effects often show up in our private lives and the workplace link can be lost altogether (Astrande, 1989).

Strategies identified from the literature review (Heaney et al., 1993) identified strategies to reduce stressful factors as:

- Conduct regular inspections to specifically identify hazards associated with stress,
- Investigate incidents that might be related to stress to identify cause and prevention strategies,
- Review health, absenteeism, and other available records to look for signs of stress ,
- Participate in Occupation Health and Safety committees to assist with problems related to stress,
- Advocate training to employees throughout the organisation on how to recognise stressful situations and workers suffering from stress,
- Collect data, statistics and information on methods to reduce stress and how to cope with it,
- Review changes in work-practices and procedures for potential as stressors,
- Look for possible changes that might reduce stress,
- Participate in training programs on job stress and job re-design ,
- Develop stress-related information for dissemination to employees and new hires during orientation sessions, and
- Conduct on and off-the-job relaxation and physical conditioning programs.

Organisational Health and Wellbeing

From the findings of this research and as identified by CWA Occupational Safety and Health Department (2009) the creation of a work environment where health and safety and employee wellbeing is protected and promoted, organisations is paramount. Consistent with the findings of the research an organisations systems should ensure that:

- Staff have access to competent OHS advice and support (Health Safety Executive, 2006).
- A good occupational health service. Proactive occupational health arrangements can deliver efficiency savings in a relatively short timescale. Proactive OHS and a healthy and supportive working environment can play both an important role in preventing work related ill health and in proactively managing common health problems, to help employees remain in work (Health Safety Executive, 2006).
- Organisations invest in development and implementation of a Health Ownership Model as outlined by Cameron (2010) to provide a workable, structured and continuous process for the management of the healthy workplaces.
- Encouragement of employees to be actively involved in community activities or social events to assist in reducing problems related to lack of community support and 'sense of belonging' (within the community). This can assist in reducing the risk of an individual having no home/community support network other than work if they are injured or unwell. (Health Safety Executive, 2006).

Performance Management

Performance management systems need to be effective in organisations; the following should be considered and implemented:

- Make sure that the system works for the organisations and does not create further problems
- Make sure that the system is followed and understood by all

employees in positions where they may be required to manage people

- Ensure management and employees are fully trained in the system and understand the process
- Ensure that performance management happens on a continuous and timely basis
- Make sure systems are robust and not just to mitigating worker's compensation claims and costs. Specifically, the system deals with the competing interests of legislation such as industrial relations, employment law and anti-discrimination legislation to name a few.

Job Autonomy

Employees who have control over aspects of their work have been shown to be more productive, satisfied, and healthier. It is recommended that organisations should:

- Review employee's position to establish the amount of control or autonomy an employee has over the work they perform and their work environment
- Liaise with employees and employee representatives to establish the best way to incorporate control over the work that the employees do
- Look to review employee autonomy or control on a regular basis to gain feedback and input from employees regarding improvements to the work being performed, including productivity of the organisation and the health of the workforce.

Recording and Review of Organisational Data

In an organisation, problems being dealt with by one manager or department can also be experienced by other managers in an organisation. Organisations data collection and recording systems are essential to ensure information is collected, reviewed and analysed to understand trends or problems throughout the organisation and ensure that all concerned are provided proper resources and support to proactively manage the problem(s) in line with agreed management protocols.

Statistical analysis and tracking on a monthly and annual basis allows organisations to establish information and trends that may not have otherwise been predicted had the analysis not occurred. Tracking statistics over, a routine period, financial or calendar years allows a point of reference and a means of comparing performance to identify improvements or deteriorations in the system and the reason for such performance to be analysed.

It is recommended that organisations conduct statistical reviews to identify trends and implement effective management strategies to address findings. Strategies organisations should consider are:

- Absenteeism - Sick leave and annual leave by department or location to determine both trends/potential hot spots in the organisation and the right systems and data to support better absence management (Health Safety Executive, 2006)
- Health and Safety – near misses, hazard and accident investigation reporting to detect departments at risk or potential problems that may be resulting from an accumulation of work stress or ill-health in individuals or work groups
- Mental health data and statistical analysis. (Health Safety Executive, 2006).

Implementation of Climate Surveys

Climate surveys document the link between working conditions and negative health effects (Health Safety Executive, 2006). It is therefore an essential when managing workplace risk that organisations monitor and confidentially record the attitude and affects that working in the organisation has on the individual, team and workforce as a whole.

Climate surveys provide individuals with a confidential opportunity to report problems they may not feel comfortable discussing face-to-face with management or

peers. Climate surveys gain regular confidential feedback from the workforce on issues such as:

- Individuals perceived health;
- Individuals satisfaction with their role and departments;
- Perceptions on issues such as job role, autonomy, satisfaction with their supervisors;
- Requirements for flexible working arrangements and what individuals look for in flexible working arrangements; and
- Bullying and harassment in the workplace (CWA Occupational Safety and Health Department, 2001).

Organisations should look to implement the following strategies to benefit from climate surveys.

- The implementation of routine climate surveys to gauge the health and wellbeing of employees and also to understand organisational pressures that may be contributing to lack or performance and/or productivity
- After conducting data analysis of the collected climate survey information, agree on appropriate strategies and interventions to address areas of concern

Undertake follow up of agreed strategies and interventions to ensure effectiveness.

Family Work Life Balance

If an employee has a well-balanced family and work relationship, they will be productive and resilient in coping with work and family needs and requirements. It is recommended that organisations should:

- Seek opportunities to explore ideal family/work balance with employees to prevent additional stress and ultimately ill-health. Management should discuss and agree on flexibility in working patterns to include job sharing, flexitime, long term length contracts, reduced hours and working from home where possible.

- To make the workplace more family-friendly organisations should:
    - Gain support from staff and management for making the organisation family friendly;
    - Establish a reference group – gathers relevant info and disseminates effectively;
    - Take stock – find out exactly what your organisation currently has in order to determine any gaps;
    - Assess the culture of the organisation – having a workplace with a family-friendly culture is more than half the battle;
    - Find out what staff might need to assist them to balance work and family;
    - Analyse and interpret the information;
    - Develop a strategy for implementation;
    - Review and evaluate effectiveness of family-friendly provisions (CWA Occupational Safety and Health Department, 2001).
- Develop and maintain "in-touch" programs so that contact can be maintained with employees on extended leave;
- Purchased leave - gives employees the opportunity to pay for more leave and have salary averaged out across the year. (Industrial Relations Victoria, 2007).

Job Redesign and Modification

It is recommended that organisations should provide consideration to the following strategies associated with improving job design and enhanced productivity.

- When considering job redesign, organisations can effectively engage the workforce to implement the necessary redesign and ergonomic modifications internally (Morgeson & Campion, 2002);
- Job redesign in organisations aimed to increase motivational and mechanistic design can increase productivity without reductions in work efficiency or output (May & Schwoerer, 1994);.
- Semi-autonomous team designs can enhance performance behaviours

(Morgeson & Campion, 2002);

- The key to the appropriate use of team designs lies in understanding the surrounding individual and organisational context (Morgeson, Johnson, Campion, Medsker, & Mumford, 2006);
- Review the structure of work roles and their effects on individual's health both physically and psychologically
- Ensure roles are structured to allow employees autonomy, decision making, and control (Morgeson et al., 2006).

Work Team Dynamic

The findings of this research show that a supportive team and organisational culture contribute to LDC outcomes. Lee-Kelley asserts that studying individual's will give us a valuable insight into personal motivators of teams and should lead to more effective ways of selecting, motivating and managing workers (Lee-Kelley, 2006)

To ensure effectiveness and productivity within a work team it is essential that the right mix and make up of employees are obtained. Organisations should look to investigate the orientation of the workforce to ensure that they operate as a harmonious team to deliver appropriate outputs and ensure employee satisfaction and health are maintained. Specifically organisations should:

1. Understand the orientation of the workforce to ensure an appropriate mix to ensure optimal performance outcome and team cohesion;
2. When recruiting, testing of the potential new employees orientation to establish the impact their inclusion they may have on the dynamics of a work team, should be conducted.

8.3.2.2 Secondary Prevention

The second level of the model of management (Appendix 10) documents the secondary levels to be used to prevent long-duration workers' compensation claims when red flag are not present. Following are the recommended strategies to use for

secondary levels of pre claim prevention of long-duration workers' compensation claims.

Pre-Incident Early Intervention

Pre-Incident early intervention is the key to avoiding escalating of problems to the point where the employee is no longer able to function at work. Problems can be a combination of both work and non-work related issues. The earlier the intervention the more successful the outcome tends to be.

Managers need to be trained and aware of the importance of detecting problems with employees to ensure that strategies are in place to prevent these problems from escalating; with the goal to resolve the issue fully where possible, or put in support mechanisms that will assist in positively managing the issue into the foreseeable future within the workplace setting.

Organisations have a number of mechanisms available to combat problems or issues in the workplace. These tools are discussed in further detail following.

Ensure managers are trained and the organisation has systems to prevent the escalation of minor issues that could cause injury or illness and more specifically long term injury or illness.

Employee Assistance Program

It is recommended that a well-equipped and robust employee assistance program be implemented into organisations as a method of injury and illness prevention. Management and employees should be aware of the EAP and be offered the service when signs or issues arise that would indicate an employee or their family requires assistance to deal with a problem and would benefit from EAP counselling.

Mediation

Mediators are an effective tool to prevent and avoid conflict between individuals and work groups within an organisation. When organisations have access to and appropriately use well skilled mediators, conflict between individuals that causes distress and negative experiences in the workplace can be prevented. Supervisors and managers should be made aware of the benefits of mediation and mediators for prevention of conflict between individuals and work groups and to ensure that mediation is used appropriately and in a timely fashion. This will assist in containing the conflict and contribute the ongoing health and productivity of individuals and the organisation.

Occupational Physician or General Practitioner

It is important that supervisors and management within an organisation have access to a medical practitioner who specialises in industrial medicine or is a qualified occupational physician. Having timely access to an Occupational Practitioner who understands the work conducted within the organisation can prevent ill-health and injury from occurring and/or prevent ill-health and injury deteriorating to the point that long term disability is the result.

Masseurs

Organisations should consider the implementation and trialling of massage programs into their workforce and monitor the benefits of the program on the both individual employees and the workforces' performance, productivity and absenteeism as well as the statistics associated with reported injury and ill-health.

Pre-employment Medicals and Fitness for Work Monitoring and Surveillance

Ensure that the organisation has a system in place to establish Fitness for Work, not just at the pre-employment stage but also following critical triggers and at other regular intervals throughout the employee's time with the company.

The systems that the organisation establishes to manage Fitness for Work should also include information regarding what surveillance or assessment activities should be undertaken and at what stage/s of the employee's tenure with the organisation should this be collected. In addition specific triggers relating to the employees' health should also trigger certain assessments e.g. age trigger, non-work related illness trigger.

8.3.2.3 Tertiary Prevention

The lowest level of the model of management for the prevention of long-duration claims (Appendix 10) is tertiary prevention.

The findings of this research show that a supportive team and organisation is essential to employee's prevention of LDC. In the event that employees do become ill or injured at work, for post injury interventions to be successful a number of elements must exist. These include a safe and comfortable working environment; opportunities for social intervention; and rest and relaxation at work.

Methods of how these elements can be achieved to ensure successful outcomes will be explored in further detail.

Implementation of an Effective Injury Management System

An employer who expects and wants an employee to return to work full-time should confirm this expectation by:

- Ensuring regular contact while the employee is absent;
- Explaining and agreeing the process of rehabilitation into the workplace;
- Providing resources to assist in this process; and
- Asking the employee for their opinion (Health Safety Executive, 2006).

The Health and Safety Executive (2006) emphasised the need to ensure that injury management and/or rehabilitation aims and objectives have real meaning, are agreed upon and benefit the injured person.

Organisations should ensure that they have clearly defined injury management systems to ensure that in the event of an injury, employees are dealt with in a timely manner using a clear process that is understood by all within the organisation.

In the event that employees are ill or injured as a result of the work performed, every effort should be made to ensure that that are supported throughout the recovery and return to work process. Organisations need to ensure that they have:

- A well-defined and documented injury management system that is understood by all within the organisation and put into action immediately when ill-health or injury is detected
- An experienced and trained injury management coordinator
- Timely and proactive intervention by the injury management coordinator to facilitate a return to work performing suitable duties
- Identification of alternative duties available for each position and location that outlines the physical demands of the tasks to be conducted
- Lines of communication that are understood and complied with to:
    - Enable employees to remain working while their injuries are being treated and maintained; and
    - Support and engage health professionals on return to work issues (Health Safety Executive, 2006).
- Health Safety Executive (2006) found that in Britain there are too few doctors and therapists who are adequately trained in the recognition and management of psychological and social factors. It is therefore essential that organisations have access to a medical practitioner or occupational physician who is familiar with the work environment of the organisation.
- Ensure that there is adequate funding for specialist rehabilitation and psychosocial interventions

- The merging of a clinical and occupational approach designed to overcome obstacles to recovery and an approach to case management that facilitates effective post-injury rehabilitation was seen as offering 'exciting new possibilities' (Health Safety Executive, 2006).

Implementation of effective claims management process

Australia has eleven separate and differing workers' compensation jurisdictions, whilst the cover and extent of entitlements may differ, they generally cover the following:

- Medical expenses
- Reasonable travel requests
- Weekly wages
- Vocational rehabilitation
- Permanent Impairments or loss of function that results from the injury or illness (Worker's Compensation and Injury Management Act of 1981).

It is essential that employers have well defined and coordinated claims management systems in place to ensure that ill or injured employees are provided assistance and support throughout their claim. Workers' Compensation can be viewed as an adversarial and complex process. If the employer has systems in place to assist the employee navigate their way throughout the process and inform them of their rights and obligations throughout this period, they feel supported and any anxiety about being within the system can be elevated.

Claims management is an essential process that ensures:

- The ill or injured employee has submitted claims forms and supporting medical evidence to ensure prompt determination of liability
- Determination of liability is conducted in accordance with legislative requirements and liability determined in a fair and equitable manner
- Where further medical evidence or information is required, there should be prompt management to ensure unnecessary delays are prevented

- Communication with all key stakeholders associated with the injury and claims management to ensure that key aspects of the injury and claims are not only understood but are being managed appropriately
- Ensure that the entitlements of the ill or injured employee are being accessed in a fair and equitable manner
- Unnecessary delays or problems are avoided to prevent or deter the focus away from that of a return to gainful employment
- Claims management strategies are in place to ensure optimal outcomes in a timely and appropriate manner
- Claims costs and expenses are being managed in an appropriate and responsible manner

Claims management procedures are implemented to ensure a common and structured approach for managing employee's claims and entitlements for compensation, this includes:

- Managing claims in accordance with established and agreed procedures and guidelines
- Ensuring relevant documentation and confidentiality requirements are met
- Ensuring that Injury Management System are implemented, maintained and all effort is coordinated to return the ill or injured employee back to their fullest capacity
- Where a person is unable to return to their pre-injury duties, alternative employment options within the organisation are explored prior to any decision regarding redeployment externally
- Where external redeployment is warranted the ill or injured employees claim is strategically monitored to ensure that the employee is supported throughout this process and the claim management is coordinated in a planned and structured manner
- Claim management strategies are reviewed and discussed on a regular and continued basis to ensure optimal claims outcomes are achieved.

Organisations should ensure that a robust and documented claims management process is in place. This system should have a trained and experienced individual accountable for the process that ensures that a fair and equitable approach is maintained whilst optimal claims management outcomes are achieved.

Claims management systems should ensure that potential for and avoidance of, disproportionate outcomes is achieved by pro-active claims management processes and effective communication and co-ordination between line managers, case managers, claims managers, doctors, rehabilitation providers and the claimant (Health Safety Executive, 2006).

Addressing Barriers

Optimal injury and claims management outcomes cannot be achieved unless problems or barriers that arise are sufficiently addressed and overcome. Vital to the injury and claims management process is effective and transparent communication with key parties to resolve problems and barriers – this is achieved through open discussion and collectively addressing issues with all stakeholders.

The treating medical practitioner, injury management coordinator and/or appointed vocational rehabilitation provider will each generally conduct an initial interview with the ill or injured employee. The aim of this interview is not only to understand the ill or injured employee's injury and how it may impact on them, their family and their social interactions, but to identify barriers or problems that may prevent optimal return to work and recovery to fullest capacity.

During this interview and in subsequent communication with key stakeholders the following are established:

- Return to work goals and objectives to work towards
- Approximate timeframes to achieve optimal recovery and return to work

outcomes

- A plan of treatment and intervention the ill or injured employee will receive to ensure recovery
- Surgical or allied health intervention if warranted
- Other interventions to achieve recovery and desired outcomes

Examples of barriers may include and are not limited to the following:

- An employee who for a given reason is not motivated to actively engage in a return to work program
- Where the employee, manager or supervisor only wishes to commence a return to work once the employee has achieved full recovery
- The ill or injured employee's perception of their injury does not correlate with the identified and confirmed pathology
- Where the injury is not the cause of the workers inability to return to work
- Often factors pre-date the injury and therefore employers need to ensure that they are managing the prevention of these psychosocial factors before the injuries occur (Health Safety Executive, 2006).

It is essential that the key claim stakeholders are not only identifying barriers that may prevent optimal recovery and return to work, but ensuring that with constant and transparent communication that all parties are working towards addressing the barriers and ensuring that the fair and equitable workers' compensation system is maintained.

Implementation of psychosocial barrier screening early with ill or injured employees

As outlined in the body of discussion, intervention for the prevention of ill or injured workers should occur before an incident or injury has occurred. In the event that prevention cannot be achieved and illness or injury results, organisations should look to implement a screening tool to establish ill or injured employees at risk of developing long term disability.

The appropriateness of questionnaires for organisations to implement as a screening tool should be discussed with allied health providers to determine the most effective method of screening that is suitable to the organisations and its needs.

In the event that illness and injury cannot be prevented, it is essential that organisations, in conjunction with the assistance of medical providers and allied health providers have a system to screen psychosocial barriers in an attempt to improve recovery and ultimately return to work outcomes.

Recommendations are also made for further research to be conducted based on the findings of this research and to fill gaps in knowledge about pre-claim prevention of long-duration workers' compensation claim prevention.

8.3.3 Recommendations for further research

The prevention of long-duration workers' compensation claims – pre-claim intervention and strategy research provides an introduction into the primary prevention of LDCs at the most essential point of the evolution of the claim and injury – prior to the workplace injury or illness occurring.

There are opportunities for further research based on the findings of this research. To build on the findings of this research it is recommended that research be conducted on the following.

- It is recommended that further research on the theory highlighted in this research be conducted so that further evidence and knowledge of the prevention of LDCs can result.

- Further research into the Green Flag model is recommended. A number of factors (listed following) were included in the initial Green Flag Model, however latter excluded due to the fact that this research did not prove their significance. It is envisaged that further research conducted using these variables may show that they are of significance with an appropriate sample

size. It is therefore encouraged and recommended that these factors be further investigated to determine their significance to the development of ill-health and injury in the workplace and more specifically the incidence of LDC outcomes:

- higher level of psychological and physical demand;
- low skill discretion;
- poor co-worker support;
- high Job demand;
- low control and autonomy.
- individual has poor coping skills.
- union membership.

- That further investigation and research be conducted on the Causal Model (Figure 30 page 265) for the prevention of pre-incident variables and the influence and relationship that the various levels have on each other.

- Further research should be conducted on pre-incident prevention of work-related ill-health and injuries. There is a plethora of research and prevention of the effects of ill-health and injury post injury, but very little prior to the injury occurring.

- It is recommended that a number of factors in the research questionnaire be considered and included in future research. These factors are as follows.

1. The employer questionnaire should be modified to ask employer representatives to identify the age of the ill or injured employee as this will allow further comparison of age as a variable and provide greater detail to draw further comparison or conclusions upon. Whilst in this research age was not found to be a significant, it is believed that with a greater sample size that further clarity and understanding will be obtained on age and its influence on pre-incident causes of ill-health and injury.

2. The employer questionnaire did not ask the employer representative to identify their employee's birthplace or identify information on culture. It would be recommended, where possible, to collect this information if future research is to be conducted on the effect of pre-incident on workers' compensation claims and specifically LDCs. The lack of this questioning in the research is a limitation of this research.

3. More detailed information should be collected from respondents (both employee and employer respondents) on the time the ill or injured employees lived in in Australia (if this information is available to the employer), how long they have worked in Australia and it would be prudent to enquire if the respondent is on a 457 visa or a guest worker in Australia. This information will provide richer information to allow comparisons to be made on birthplace and culture. The Australian Bureau Statistics currently collect this information for their annual statistics and this would provide a good basis for the questions asked and comparison of the data and findings of future research. The lack of this questioning in the research is a limitation of this research.

4. To gain further detailed data on family commitments and family/work life balance (if this information is available to the employer), it is recommended, where possible, to modify the employer questionnaires to also collect this information. The inclusion of this information to the employer questionnaire will allow comparison to the employee questionnaires and to gain further information and insight as to whether family commitments is a predictor to workers' compensation claims becoming long in duration. Despite family commitment not being found to be statistically significant in this research it is the author's belief that this further research is required to gain greater insight and clarity on family commitment and work/life balance on the incidence of LDC outcomes.

- Given that this was an innovative study, it is recommended that further research continue on gaining clarity on the prevention of ill-health and injury pre-incident and the information obtained be provided to companies, organisations and employees to improve their systems of management and organisational practices, the health and wellbeing of the organisation and employee, the resilience of all stakeholders and more specifically the prevention of ill-health and injury that result in LDC outcomes.

- Workers' Compensation Schemes Nationally and Internationally are recommended to look at conducting research into pre-incident prevention of individual, organisational and psychosocial factors to gain clarity on the effect such factors have on the incidence of claims and more specifically LDC outcomes and to invest in research to gain greater clarity and information on the reasons workers did and did not receive compensation for work related injuries.

The findings of this research have provided some positive steps to the prevention of ill-health and injury pre-incident and provide a solid foundation for further research to commence. It is hoped and encouraged for further research to be conducted by WorkCover or government body where the issues of The Privacy Act of 1988 (Commonwealth) can be minimised. WorkCover or a government regulatory bodies will have greater access and ability to contact ill or injured employees and their employers to encourage their participation in the research. Further research and knowledge in this field are essential to gain greater clarity on the pre-incident causes of ill-health and provide organisations and workers' compensation schemes the ability to educate and train stakeholders to prevent and reduce the effects of ill-health and injury.

8.4 Summary

The world that we live in is ever evolving. With this evolution come advances in technology, processes, and greater pressure on organisations and its people to

perform and deliver. These pressures place greater strain on employees and more particular their family. Increased hours at work, increased mental strain and fatigue mean an impact on family work balance and the employee's health and wellbeing.

It is the author's desire that ill and injured employees will be spared the pain, discomfort and inconvenience of workplace ill-health and injuries. Employers of ill and injured employers will be spared the time, costs and inconvenience of not only dealing with the effects of workplace ill-health and injury; but also be provided more time and efficiency in managing their core business operations. For the medical profession and allied health professionals who support and assist ill and injured employees it is hoped that this information will free them up to assist ill and injured employee who require treatment as opposed to ill or injured employees who incur ADO outcomes.

9.0: References

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10.0 Appendices

Appendix 1 - Letter Sent to Participants

CURTIN UNIVERSITY OF TECHNOLOGY

Research Outline for Participants

For Research Proposal: Prevention of Long-duration Workers' Compensation Claims –

Pre-claim Intervention and Strategy

Important Information for Participating Injured Workers' and Employers

The aim of this research is to gain a better understanding of factors that may influence and contribute to the onset of workers' compensation claims and more specifically long-duration claims where the injured employee is unable to return to gainful employment for more than 2 month post injury.

The research seeks the involvement of injured workers and their employer, who have sustained a workers' compensation claims between 1 January 2009 and 31 December 2009. The research is attempting to determine factors that potentially contribute to long-duration claims and develop strategies prevent these from occurring.

This research seeks the injured workers and employer's opinion and perspective on factors that existed or may have in some way contributed to the onset of the injury and claim.

Factors or characteristics that are to be explored include the following:

- Job Dissatisfaction;
- Human resource and engagement practices;
- Nature of the work performed;
- Fitness for work management;
- The nature of the employer vs employee relationship; and
- Existence and effectiveness of performance management practices of organisations

It is anticipated that upon the completion of the data analysis the importance of the pre-claim variables researched will be established and should allow the researcher to provide comments and recommendations regarding a suitable model of management

to assist with the prevention of future workers' compensation and long-duration claims.

Blind Survey

This is a blind survey which means that at no time is the insurer (who has contacted you regarding the research) aware of whether you have agreed to participated in the survey or the information that you have supplied. A number of measures have been put in place to ensure that your personal details are not recorded on the survey and therefore at no time will you be able to be identified from the information collected from you.

What Respondents will be required to do:

Respondents will be contacted via the mail to advise them of the research and obtain their consent. A copy of the research outline and the consent form will also be provided.

The consent form asks you to advise whether you would prefer to complete the questionnaire or have an independent researcher contact you to obtain your responses over the telephone. We then require you to send the consent form to the independent researcher in the self-addressed envelope provided.

Once respondents have provided their consent the researcher will contact them via telephone or mail to commence the questionnaire.

Participants will be asked to answer a series of questions and asked to provide an answer from a scale where:

Scale	1=Strongly Disagree	2 = Disagree	3 = Don't Know	4 = Agree	5=Strongly Agree

Alternatively, questions requiring a yes / no answer will be asked. During the process participants will be provided the opportunity to provide comments or other information relating to the questions being answered.

How long will it take?

It is expected that the questionnaire will take no longer than 10 minutes to complete.

Right to withdraw at any time without penalty

You may withdraw participation from this research at any time without any penalties.

Security of information

No personal information will be collected through the questionnaire answers and in no way can the respondent be identified from the information collected. The information collected will be stored in a confidential manner in a locked cabinet at Curtin University of Technology with only the researcher and research supervisor having access to this information. Upon completion of the research all material will be destroyed in a confidential manner. This will be done by shredding documents or destruction of documents by a registered business.

Without prejudice participation

Respondents who participate in this research will not in any way prejudice any claim or entitlement to compensation. The information collected relates to conditions or practices that existed prior to injury or incident and does not collect specific information relevant to how the incident occurred, parties involved or their involvement in the incident. At no time will information be released to a third party. WorkCover Western Australia has been briefed on this research and have endorsed the Research.

Appendix 2 - Employee Consent Form

CURTIN UNIVERSITY OF TECHNOLOGY

FORM OF DISCLOSURE & INFORMED CONSENT FOR RESEARCH – Employee Consent

The purpose of this study titled, P*revention of long-duration workers' compensation claims – Pre-claim intervention and strategy*, is to identify the most successful strategies for preventing long-duration workers' compensation claims before a workers' compensation claim is made. Both management and employee perspectives will be studied with the information to identify these strategies being sought via a questionnaire.

Consent

I consent to help provide information relevant to this research.

I understand that my employer may be randomly sampled and contacted to gain information about variables that existed prior to my workplace injury and I consent to my employer being approached.

I understand that any questions concerning the research can be directed to Sherrilyn Shaw (Principal Investigator Phone number 0433 118701). If I have any concerns about the research project I may also contact the research supervisors, Dr Janis Jansz on phone number 9266 3006 or Professor Rob Guthrie on 9266 3222. For independent advice I may phone the Chairperson of the Ethics Committee at Curtin University on 134328. I have been provided with their relevant contact details in the form of a duplicate copy of my signed consent form.

I …… have read the information above and any questions that I have regarding this research have been answered to my satisfaction. I agree to participate in this research study realising that I may

withdraw at any time, without being penalised. I agree that the research data gathered for this study may be published provided that my name is not used.

I understand that I have the option of completing the survey completing the enclosed questionnaire or an independent researcher can contact me by telephone to collect your responses at a time and location specified by me. I request the following option:

Option A

☐ I have completed the questionnaire:

_____

Option B

☐ I be contacted directly on the following number:

_____

I would prefer if I can be contacted at the following times:

Date:	**Monday**	**Wednesday**	**Saturday**
Time: please specify a suitable time			

_____

Participant Date

_____

Witness Date

_____

Investigator Date

Appendix 3 - Employer Consent Form

The purpose of this study titled, P*revention of long-duration workers' compensation claims – Pre-claim intervention and strategy*, is to identify the most successful strategies for preventing long-duration workers' compensation claims before a workers' compensation claim is made. Both management and employee perspectives will be studied with the information to identify these strategies being sought via a questionnaire.

Consent

I consent to help provide information relevant to this research.

I understand that my employee may be randomly sampled and contacted to gain information about variables that existed prior to their workplace injury and I consent to my employee being approached.

I understand that any questions concerning the research can be directed to Sherrilyn Shaw (Principal Investigator Phone number 0433 118701). If I have any concerns about the research project I may also contact the research supervisors, Dr Janis Jansz on phone number 9266 3006 or Professor Rob Guthrie on 9266 3222. For independent advice I may phone the Chairperson of the Ethics Committee at Curtin University on 134328. I have been provided with their relevant contact details in the form of a duplicate copy of my signed consent form.

I …… have read the information above and any questions that I have regarding this research have been answered to my satisfaction.

I agree to participate in this research study realising that I may withdraw at any time, without being penalised. I agree that the research data gathered for this study may be published provided that my name is not used.

I understand that I have the option of completing the survey completing the enclosed questionnaire or an independent researcher can contact me by telephone to collect your responses at a time and location specified by me. I request the following option:

Option A

☐ I have completed the questionnaire:

_____

Option B

☐ I be contacted directly on the following number:

_____

I would prefer if I can be contacted at the following times:

Date:	**Monday**	**Wednesday**	**Saturday**
Time: please specify a suitable time			

_____

Participant Date

_____

Witness Date

_____

Investigator Date

Appendix 4 - Employee Questionnaire

Questionnaire: _____

EMPLOYEE QUESTIONNAIRE

Employee Number: _____ Length of time worked in this position: _____ Total Number of days off work (non consecutive) due to injury : □ 0-59 days □ 60 days + No of employees: □ 1-10 □ 11-50 □ 51-100 □ 101-250 □ 251 -500 □ 501-1000 □ 1001+ Date of Injury : _____ Injury : _____ Occupation: _____
Are you: **Female [ ] or Male [ ]**
Your current age: **Less than 25 years [ ] 26-35 years [ ] 36 to 50 years [ ] 51 to 64 years [ ] Greater than years [ ]**
Are you: **Single [ ] Married [ ] Divorced [ ] Other [ ]**
Country of birth is:
Number of dependents:

What is your occupation: **(Please specify)**
How long have you worked in this occupation: **(Please specify period in days or months or years)**
How long have you been employed by your present employer: **(Please specify period in days, months or years)**
Are you: **(please tick the most relevant)** **Permanent [ ]** **Causal [ ]** **Fixed contract [ ]** **Other [ ] please spe** **_____** **Fulltime [ ]** **Part-time [ ]** **How long is the fixed contract? _____**
Do you normally work: **Fixed roster [ ]** **Rotating rosters [ ]**

The questions below relate to how you feel about your general health. You need to tick √ the box that most describes how you feel:

Question		Tick √	Explanation or Comment
1.	Most people have days when they feel pretty "blue" or depressed during most of the day. How often does this happen to you?		
a.	**Two or three times a week**		
b.	**About once a week**		
c.	**Once or twice a month**		
d.	**About once a month**		
e.	**Less than once a month**		

2.	Most people have days when they feel tired or worn out during a good part of the day? How often does this happen to you?		
a.	**Two or three times a week**		
b.	**About once a week**		
c.	**Once or twice a month**		
d.	**About once a month**		
e.	**Less than once a month**		
3.	How often do you feel nervous, tense or edgy while on the job?		
a.	**More than 50% of the time**		
b.	**About 50% of the time**		
c.	**About 25% of the time**		
d.	**About 10% of the time**		
e.	**About 5% of the time**		
f.	**Very rarely or never**		

Please circle the correct yes or no to the statements below:

Question		Response	Don't Know
a.	**I am often bothered by indigestion?**	**Yes / No**	

b.	**I sometimes feel weak all over?**	**Yes / No**	
c.	**I have trouble getting to sleep?**	**Yes / No**	
d.	**I get irritated or annoyed over the way things are going?**	**Yes / No**	
e.	**I consider I have good or excellent health?**	**Yes / No**	
f.	**I consider I have fairly heath only**	**Yes / No**	
g.	**I consider I have poor health**	**Yes / No**	
h.	**I wake up with stiffness or aching in joints or muscles?**	**Yes / No**	
i.	**I seem to tire quickly**	**Yes / No**	
j.	**My job tends to directly affect my health**	**Yes / No**	
k.	**I work under a great deal of tension**	**Yes / No**	
l.	**I have felt fidgety or nervous as a result of my job?**	**Yes / No**	
m.	**If I had a different job my health would probably improve?**	**Yes / No**	
n.	**Problems associated with my job have kept me awake at night?**	**Yes / No**	
o.	**I often take my job home with me in the senses that I think about it w doing other things**	**Yes / No**	

Please tick √ the most appropriate response to the statements below:

Question		Tick √	Explanation or Comment
4.	In the past two (2) months which of the following best describes your smoking habits?		
a.	**Nil cigarettes per day**		
b.	**1 – 10 cigarettes per day**		
c.	**11 – 20 cigarettes per day**		
d.	**More than 20 cigarette per day**		
5.	In the past two (2) months tick which of the following best describes your alcohol intake?		
a.	**Nil**		
b.	**An occasional drink**		
c.	**1 – 3 drinks per day**		
d.	**More than 3 drinks per day**		

Please circle the correct yes or no to the statements below:

Question		Respons	Explanation or Comment
6.	Within the last twelve (12) months have you had;		

a.	**Back pain related to work activities?**	**Yes / No**	
b.	**A back injury at work?**	**Yes / No**	
c.	**Other related work strain or sprains?**	**Yes / No**	
d.	**Headaches at work?**	**Yes / No**	
e.	**Cold or flu?**	**Yes / No**	
f.	**High blood pressure?**	**Yes / No**	
g.	**Unintentional weight loss?**	**Yes / No**	
h.	**Cardiac problems?**	**Yes / No**	
i.	**Unintentional weight gain?**	**Yes / No**	
j.	**Rash?**	**Yes / No**	
k.	**Mood changes?**	**Yes / No**	
l.	**Arthritis?**	**Yes / No**	
m.	**Gastro-intestinal disorder?**	**Yes / No**	
7.	Would you describe your position as a manual, physically or ment demanding?	**Yes / No**	
8.	During the interview process for my present employment position I was as	**Yes / No**	

	about previous injuries and how they would affect my ability to do the work.		
9.	If previous injuries exist, I was provided assistance and education modifications to the work as applicable	**Yes / No**	
10.	I attended a pre-employment medical	**Yes / No**	
11.	When inducted to the organisation I was provided with a formal induction	**Yes / No**	
12.	At induction I received instruction regarding the work environment and safe w processes	**Yes / No**	
13.	At induction I received formal training on the safe use of the compa equipment	**Yes / No**	

Please circle the correct yes or no to the statements below:

Scale	*1 = Strongly Dissatisfi*	*2 = Dissatisfied*	*3 = Neither satisfied or dissatisfied*	*4 = satisfied*	*5 = Strongly satisfied*
14.	How satisfied or dissatisfied are you with;				
a.	**Working hours**			**1 , 2 , 3 , 4**	
b.	**Work team**			**1 , 2 , 3 , 4**	
c.	**Duties performed**			**1 , 2 , 3 , 4**	
d.	**Work family life balance**			**1 , 2 , 3 , 4**	

e.	**Your present job in light of your career ambitions**	**1 , 2 , 3 , 4**	
f.	**The chance that your job gives you to do what you are best at**	**1 , 2 , 3 , 4**	
g.	**Your present job when you consider the expectation you had when you t the job**	**1 , 2 , 3 , 4**	
h.	**The company's performance appraisal process**	**1 , 2 , 3 , 4**	
15.	My working relationship with my supervisor is effective	**1 , 2 , 3 , 4**	
16.	My supervisor recognises my potential	**1 , 2 , 3 , 4**	
17.	My supervisor understands my problems and needs	**1 , 2 , 3 , 4**	
18.	Other employees make mistakes and I do not	**1 , 2 , 3 , 4**	
19.	I feel successful at work when;	**1 , 2 , 3 , 4**	
a.	**I do my best**	**1 , 2 , 3 , 4**	
b.	**I learn something that makes me want to continue to learn about it**	**1 , 2 , 3 , 4**	
c.	**Others cannot do as well as me**	**1 , 2 , 3 , 4**	
d.	**I am clearly the most productive employee**	**1 , 2 , 3 , 4**	
e.	**I have influence over how I do my work**	**1 , 2 , 3 , 4**	
f.	**I follow company policy and procedures**	**1 , 2 , 3 , 4**	

g.	**I have influence over the pace of my work**	**1 , 2 , 3 , 4**	
20.	**Management are trustworthy**	**1 , 2 , 3 , 4**	
21.	**Workplace management and employees get on well together**	**1 , 2 , 3 , 4**	
22.	If I was to leave my current job, which of the following would be relevant:		
a.	**Stress**	**1 , 2 , 3 , 4**	
b.	**A better position/offer**	**1 , 2 , 3 , 4**	
c.	**Impact on person and work time**	**1 , 2 , 3 , 4**	
23.	**Management communicates to me all the information I need to perform duties**	**1 , 2 , 3 , 4**	
24.	**I am treated with respect by managers**	**1 , 2 , 3 , 4**	
25.	**My performance is fairly assessed**	**1 , 2 , 3 , 4**	
26.	**I am normally consulted in decisions making processes when those decisi directly affect me**	**1 , 2 , 3 , 4**	
27.	**This is a good place to work**	**1 , 2 , 3 , 4**	

Other comments or anything else that the respondent would like to tell you about their case.

I agree to the independent researcher contacting me in the event that there is missing information. I can be contacted on the following number: _____

Appendix 5 – Employer Questionnaire

Questionnaire _____

Curtin University of Technology

Date interview conducted: _____

Date of injury: _____ Male or Female: _____

Injury:_____ Location of business : Regional □ or Metropolitan □

Total Number of days off work (non-consecutive) due to injury : □ 0-59 days □ 60 days +

Industry employed in: _____

Occupation: _____

Length of tenure: _____

How long employed as Manager/Supervisor: _____

Position: _____

No of employees: □ 1-10 □ 11-50 □ 51-100 □ 101-250 □ 251 -500 □ 501-1000 □ 1001+

Information regarding Organisation:

Question	Response	Explanation or Comment

1.	Does the company have Human Resource personnel?	Yes / No	
2.	Does your company have a mission statement? (If so, please provide)	Yes / No	
3.	Does the company have a formal induction-training program?	Yes / No	
4.	Does the company engage contractors? (If yes are contractors inducted?)	Yes / No Yes / No	
5.	Ongoing training and education was provided to the employee?	Yes / No	
6.	Are you satisfied with the formal performance management process?	Yes / No	
7.	Was a medical conducted prior to the employee commencing employment?	Yes / No	
8.	Was the doctor provided a detailed job description including the physical demands of the job?	Yes / No	
9.	How many days has the worker missed due to sick leave in the last 12 months? (State number of days)		
10	How many days has the worker taken as annual leave in the last 12 months? (State number of days)		

Scale	*1 = Strongly Disagree*	*2 = Disagree*	*3 = Don't know*	*4 = Agree*	*5 = Strongly Agree*
Question - Please circle the correct rating to the statements below			Rating	Explanation or Comment	

11	The worker always completes the duties specified in their job description	1 , 2 , 3 , 4 , 5	
12	The worker fulfils all responsibilities required by their job.	1 , 2 , 3 , 4 , 5	
13	The worker generates original solutions to problems.	1 , 2 , 3 , 4 , 5	
14	My working relationship with my employee is effective	1 , 2 , 3 , 4 , 5	
15	The worker would be personally inclined to help me solve problems at work	1 , 2 , 3 , 4 , 5	
16	The worker is motivated to learn new skills	1 , 2 , 3 , 4 , 5	
17	The worker always does their best	1 , 2 , 3 , 4 , 5	
18	The worker often fails to perform essential duties.	1 , 2 , 3 , 4 , 5	
19	The worker always follow instructions and direction well from managers and supervisors	1 , 2 , 3 , 4 , 5	
20	The worker is well respected by their team	1 , 2 , 3 , 4 , 5	

Question		Response	Explanation or Comment
21	Has/had the employee attempted a return to work on alternative or restricted duties.	Yes / No	
22	Did the Return To Work continue for less than 10 days	Yes / No	

23	Please advise whether any of the following variables were evident prior to the employee's injury		
a.	Job dissatisfaction	Yes / No	
b.	Performance Management	Yes / No	
c.	Reviewing fitness to perform the work	Yes / No	
d.	Problems or conflict with another employee(s) or supervisor	Yes / No	

Other Comments:

I agree to the independent researcher contacting me in the event that there is missing information. I can be contacted on the following number: _____

Appendix 6 - Casual Model for the Prevention of LDC's

The following discussion highlights and reviews the causal model for the onset of workers' compensation as per the model discussed in 7.1.

1.1 Societal

The first factor that this model proposed would influence long-duration claims was society. Society and more specifically the economic climate can influence the labour market and compensation systems in many ways.

Bahn *et al.*, in their 2012 research 'The Employment of Skilled Migrants on Temporary 457 Visas: Emerging Issues', predicted Australia was to move into another resources boom due to the global demand for resources that were readily available in Australia. This growth is, in turn, was expected to drive major infrastructure construction projects (Bahn, Barratt-Pugh, & Yap, 2012). As a consequence of the pressures that result from rapid economic growth in these sectors, the ageing workforce, which is a common challenge across most other developed countries (Khoo, McDonald, Voigt-Graf, & Hugo, 2007), is contributing to mismatches in labour demand and supply (Bahn et al., 2012).

As a consequence these mismatches create friction in organisations and place addition strain on the organisation systems and resources. If the organisation is unprepared for these mismatches or friction and do not have sufficiently trained resources and systems in place to sufficiently manage these complications can result such as ill-health and injury. In turn LDC claims may result. One of the factors identified in this research that affected the occurrence of long-duration claims was being a migrant worker.

1.1.1 Migrant workers

"One hundred and five million people globally are estimated to work outside their country of birth" (Reid et al., 2014, p. 378). Reid *et al.* advises these numbers are only expected to increase with the future ageing population, labour shortages and the lack of decent employment and working conditions (Reid et al., 2014).

In times of labour shortage Government policy on the provision of visas for migrant workers or increasing guest workers entering Australia can effect labour relations and workers' compensation matters.

Workers under visa arrangements have very stringent conditions placed on them and the employer. Often migrant workers have little understanding of the culture, work practices and have poor communication with peers (Bahn et al., 2012; Khoo et al., 2007).

The ABS advise that "Australia is a nation of migrants and one in four are born abroad" (Reid et al., 2014, p. 379). Skilled migrants entering Australia on temporary 457 visas are constrained by being permitted to working for a maximum of four years and must remain with an employer for that time. They can change employers while in Australia and are allowed a maximum of 28 days out of work before they must leave the country, however, at the end of their stay can apply for permanent residency for themselves and their family (Bahn et al., 2012).

Connell et al. (2009) in their research Safeguarding the Global Contingent Work Force: Guest Workers in Australia advises that current trends show that the major sources of workers under the s457 scheme are developing countries in Asia, such as the Philippines and China, and to a lesser extent Africa, America and the Pacific region. Others come from developed countries in Europe (such as Germany) (Connell et al., 2009).

According to a study of Migrant Nurses in Darwin (Charles Darwin University, 2008) some skilled migrants are able to in perform at a high level as soon as they arrive, others taking many months to reach levels of functioning. Migrant nurses must be proficient in speaking and writing English. Charles Darwin University advises that "problems to migrant worker's efficiency in these circumstances result due to work-place use of language, including jargon, acronyms and locally-specific names for medications, can take some time getting used to" (Charles Darwin University, 2008. p.4).

In this example all nurses had to be proficient in both English speaking and writing. As outlined in Connell et al. (2009) where the major source of Migrant workers are from the developing countries listed, multiple issues need to be assessed, planned and managed with efficiency and to a certain extent delicacy to ensure that equality, appropriate decision making and in a manner to minimise the risks of ill-health and injury. As well as being a migrant worker the occurrence of long-duration workers' compensation claims can be affected by the economic climate of the country.

1.1.2 Economic Climate

The economic climate can affect the climate of the organisation. A thriving economy can often see management and employees agree to work extended hours to meet ends or alternative compromise time consuming safety and health training, report and management system to focus on delivering on targets and meeting deadlines. Working extended hours on the accumulation of working extended hours can lead to contribute. Consequences of fatigue and working extended working hours may have an impact on OSH practices and may lead to an increase in the number of report ill-health an injury and lodgement of workers' compensation claims.

In a thriving economy employees may be more inclined to work with injuries to reap the benefits that additional overtime, working extra hours and a thriving economy has to offer. Also in a thriving economy organisations are likely to pay additional workers' compensation premiums that are incurred from increasing LDC claims and as such due to the thriving economy this places less pressure on the organisation to call for changes to the benefits or entitlements under the worker's compensation system.

Where the economic climate is in recession workers are often less likely to jeopardise their employment and will often not report injuries or incidents in the fear that they may lose their employment (Safe Work Australia, 2011a). When positions are being retrenched in organisations, there is often a fear with management that employees may lodge compensation claims with injuries that they have carried in an attempt to secure ongoing compensation payments (Aria-Retnam, personal communication, 13 January 2015).

The employment of migrant workers and changes in the economic cycles can lead to the development of sub cultures in the organisation.

1.1.3 Sub Culture

For organisations to address the issues of a shortage of skilled labour by using migrant workers on 457 visas, the organisation must have sufficient internal systems in place to ensure that training, supervision, engagement and the risks of ill-health and injury and minimalised.

It is evident that from the literature that unless the organisations systems are advanced and sophisticated enough to cope with the introduction of migrant workers a subculture can be created. Therefore within the organisation separate systems and cultures exist concurrently for the migrant workers and for the non-migrant workers.

Connell et al. (2009) advised that "a number of studies of immigrant workers during the long post-war boom found that, notwithstanding some friction, immigrants tended to adopt pre-existing modes of industrial behaviour in the industries and workplaces they entered" (Connell et al., 2009, p. 456).

Further as identified by Reid *et al.* (2014) sub cultures in organisations can occur due to groups of workers having "specific cultural values and attitudes on health and safety reporting" and organisational practices (Reid et al., 2014, p. 382). Reid *et al.* (2014) reports that one respondent interviewed advised that migrant workers "whole culture is like that. There has to be loyalty. You have to be loyal to your boss and listening to people, outsiders telling you not to be loyal is to them a bit shocking … when explained how the government has a system in place to protect the worker only then do they realise the government is a bigger body than the employer" (Reid et al., 2014, p. 383).

The development of a subculture can create tension with colleagues and supervisors and can lead to ill-health, withdrawal behaviours and can ultimately lead to injury or the lodgement of a workers' compensation claim.

Connell et al. (2009) discusses the problem of the "outsider" status. Migrant workers advise that some of this resulted from affecting regulatory; lack of access to social support and the risk of being exploited/misinformed by ethnic business and subcontracting networks), stereotyping/discrimination by administrative agencies and being concentrated in industries and precarious jobs with little union representation and where non-compliance with OHS and worker's compensation regulation is common (Connell et al., 2009).

Society and the current economy climate can affect labour supply.

1.1.4 Labour Supply

Bahn et al. (2012) identified that the thriving economic climate in Australia and the increased demand on both skilled labour and non-skilled labour. To respond to the labour shortage Australia saw an insurgence of workers on 457 workers and guest workers. This period was also characterised by workers moving interstate to locate work and also travelling greater distance to be engaged in fly-in, fly-out (FIFO) work. Moving interstate and away from family and support structures can create additional pressures on worker's, family/work balance and can result in a great risk of ill-health and injury. If organisations do not have systems in place to identify and support employees, then they are at greater risk of incurring a workers' compensation claim and more specifically an LDC.

The economic boom described also saw an increase in project based / contract work. Employees were provided contracts of employment on a causal or fixed terms basis. In recent times the Australian economy has experienced both economic booms and recessions. Where employees were employed in a booming economy under a contract of employment and the contract ended in times of economic downturn, employees were more likely to report ill-health and injuries or be inclined to lodge a workers' compensation claim (Safe Work Australia, 2011).

As identified by Reid et al. (2014) in times of economic recession where there is an excess of labour, employees may be inclined to accept survival jobs which due to the poor safety culture and practices may expose the employee to greater risk of injury and the effects of low job satisfaction and reward due to the conditions of employment, the culture of the organisation and discontent created within the working environment. Employees working in survival positions are not only exposed to greater OSH risks but also the effects of being engaged in employment they do not find motivating or rewarding. This can lead to withdrawal, ill-health and injury.

Society expectations affect government and the laws made by the government in relation to workers' compensation jurisdiction.

1.2 Government / Regulatory

The second level in the Causal diagram for job dissatisfaction; job avoidance and long-duration workers' compensation claims was the effects of the government and laws. Governments set legislation to ensure that employees are paid and protected, safe at work and in the event that they are ill or injured as a result of work compensated appropriately. Legislations is also set on training and education to the workforce, the recognition of international qualifications, the process and quotas for visa and visa requirements and employment relations.

Legislation sets the parameters for employers to "manage their operations, penalties and fines that are imposed should organisations breach legislation and the level of compensation that employees are entitled to in the event of an injury. Entitlements including inclusions and exclusions can often provide for the legislation to be beneficial (such as no fault system), generous or have areas open for debate and disputation" (Connell et al., 2009, p. 454).

1.2.1 OSH Legislation

"Work health and safety legislation and practices differ widely between countries and the heaviest burden of accidents and deaths tend to fall on workers in developing countries, where large numbers are employed in high risk industries such as agriculture, fishing and mining" (Reid et al., 2014, p. 379).

Connell et al. (2009) advises that migrant workers may be at risk of being exploited or placed in high risk jobs where non-compliance with OSH regulations and workers' compensation entitlements is common. Reid et al. (2014) mirror the opinion of Connell *et al* and advise that

“long working hours and working time, shift work and precarious work (fixed term contracts or temporary work) have been associated with increased risk of work place injuries” (Reid et al., 2014, p. 379) in migrant workers (Benavides et al., 2006; Dembe, Erickson, Delbos, & Banks, 2005; Folkard & Lombardi, 2006).

The research of Reid *et al.* (2014) provides valuable insight into the reasons migrant workers face difficulty with local OSH and workers’ compensation legislation. According to Reid *et al.* (2014) “workers with poorer English language skills and fewer education or work skills, including refugees are less likely to recognise and/or question poor workplace practises, prioritising job security over health and safety” (Reid et al., 2014, p. 382). Organisations need to be aware of the individual needs of their employees and tailor training and education on OSH requirements and practices to ensure that all employees are provided sufficient knowledge and competencies to perform their job safely.

Smith *et al.* (2014) identified in their research the risk of older employees incurring a LDC where their employment had higher physical demands. Where organisation have an ageing workforce OSH considerations must be identified, assessed and appropriate controls implemented to ensure that the risk of ill-health or injury are reduced.

OSH training and education provided to employees needs to ensure that the employees understand and are competent following the training. Reid *et al.* (2014) identified problems associated with OSH training and education programs. One employee who participated in the research advised that “Thai friends they work in a nursing home in the laundry section and they are sent for training regularly …. They attend the training but they can’t understand” (Reid et al., 2014, p. 381).

A further problem identified by Reid *et al.* (2014) results from employers who do not implement safe working processes or provide a safe working environment to its workforce. Reid *et al*, (2014) introduces the concept of survival jobs and explained that "this term was used by several respondents to describe insecure, poorly paid employment, often with poor working conditions, that migrants took to meet the costs of living in the immediate period after arrival in Australia. Many took such survival jobs whilst waiting for their qualifications to be recognised or if they could not get a job in the field for which they were trained" (Reid et al., 2014, p. 383).

It is proposed that in these aforementioned situations employees engaged in such employment are at risk of demonstrating withdrawal behaviour due to the discontent or lack or reward associated from their employment and are at significant risk of ill-health or injury and a LDC claim.

1.2.2 Non- Recognition of International Qualifications

The researcher worked for the Western Australian Job Net Program assisting employees from a Non English Speaking background (NESB) enter the work force through social security created programs. This program aimed to assist migrants NESB to re-enter the workforce in level 1 and 2 clerical and administrative positions.

On numerous occasions working in this position foreign trained and qualified doctors, engineers, lawyers, teachers and other professions applied for the level One or Two training programs. The reason for these professions applying for such low level positions resulted from the lack of recognition of the international qualification. Many were unable to have their qualifications recognised, did not have sufficient English proficiency to practice their profession or were not able to fund required bridging courses to recognise their qualification.

The individuals in these programs initially had high expectations that training program may assist to return them to their former occupation. However when this did not occur and they were required to perform repetitive, menial and basic administrative tasks negative experiences and results occurred.

To combat these negative consequences, this required significant one-on-one counselling, assistance and support to manage their expectations and to assist and support them where possible. In some circumstances this resulted in problems with the host employers as the individual was over educated and qualified for their position that they were performing.

The program discussed was a short term project that lasted for only 6 months, however where internationally qualified migrant employees accept positions in open employment similar problems and experiences can occur. This disconnect between the employees' knowledge and unrecognised qualification causes negative experiences, withdrawal behaviours, job dissatisfaction, ill-health and injury. Reid *et al.* (2014) confirmed in their research this problem. "Many [migrant workers] were overqualified for such survival jobs, for example an engineer from Lebanon was washing buses in Australia" (Reid et al., 2014, p. 384).

A respondent of Reid *et al.* (2014) research discussed his experiences in terms of his overseas training and qualifications being recognised in Australia. The respondent advised "in my case, when I came to Australia my skills used to be a technician for photocopies, working with Canon but the time when I came to Australia I realised to get that job first thing I need to go to technical college, to study English. Even if I have experience, after working for years and years, but I need certificate to prove experience" (Reid et al., 2014, p. 383).

The Job Net Program described above was a Government funded education and training program, and will be further discussed in the education and training element of the model.

1.2.3 Education and Training

The Government policy on education and training can affect the availability of jobs, the entrance educational levels required and whether education and training is available for specific jobs and industries.

In the boom identified above a lack of skilled trade's people resulted and consequently saw the government implementation of government funded training programs to assist semi-skilled people in associated work to be trained to work in supporting roles (Carnevale et al., 2010). In some situations apprentices normally serving 3 year apprenticeship were offered the opportunity to finish the apprenticeship in a short timeframe and government and industry training provider worked to accelerate the training to deliver competent apprentices in a short timeframe. Other initiatives saw Cert III or IV programs being created to training candidates to perform aspects of roles skilled tradespeople performed whilst not holding the full trade apprentice certification.

In times of economic recession the Government and Training Agencies look to identify areas of employment were skill shortages are evident or may result in the future and look to implement training and education programs to deliver trained and competent candidates (Carnevale et al., 2010). It is essential that candidates not only have the aptitude to participate in the training, but also meet the physical demands of the position that they are training for and are interested and motivated to perform the work of the position.

Where candidates being trained do not meet the physical requirements of the job or do not find the work rewarding or satisfying there is a risk of exposure to negative experiences and ultimately may result in ill-health and injury. This ill-health and injury may result in the lodgement of a workers' compensation claim and accessing the entitlements that the system provides.

1.2.4 Workers' Compensation System Entitlements

Safe Work Australia (2011) reported that migrant workers do not lodge workers' compensation claims as they are unaware of their entitlements and right to workers' compensation and are not proficient in English to understand their rights.

In times of economic boom increased entitlements to workers' compensation entitlements paid to workers are more likely to be supported by the industry and stakeholders as they are in a better financial position to pay the increased benefits that may result. Where the economy is sluggish or in recession increased entitlements paid to workers are less likely to be supported by stakeholders in the industry and therefore enforced.

Recent amendments to the Western Australian Workers' Compensation legislation on removing the age limits to worker's rights to receiving weekly payments beyond the age of 65 is an example of how amendments to legislations entitlements can occur. Given the ageing population and the need for older workers to continue to work beyond the age of 65, society placed pressure on the government to make amendments to the workers' compensation legislation that only compensated workers up to the age of 65 or one year post the age of 65. The Australian Law reform Commission advised that reform was required as this situation was at odds "with government policy objectives aimed at keeping people in work rather than in receipt of the Age Pension" and causing "workers to access other forms of income support such as the Disability Support Pension, superannuation and other forms of private savings" (Australian Law Reform Commission, 2012, p. 74).

Increasing entitlements for older workers beyond 65 may place greater pressure on the workers' compensation system in Western Australian given that older workers are more prone to the lodgement of workers' compensation claims and LDC outcomes (Safe Work Australia, 2011).

Between 2009/10 to 2012/13 in Western Australia, employees over the age of 65 made up 2% of the lost time workers' compensation claims numbers (WorkCover WA, 2014).

1.3 Company and Organisation

The third level in the causal diagram for job dissatisfaction/ job avoidance and long-duration workers compensation claims (see Appendix 7) is at company level. Society influences the government, who produce laws that affect companies. The company determines the 4th level of this model which is organisational management.

The company sets policy on how business will be managed and operated. Systems of work, OSH practices, organisational practices including how the work is structured, and the layout of the premises and resources available can all affect the labour market and the possibly workers' compensation systems (Wickizer et al., 2011; MacEacher, 2013; Smith et al., 2014).

1.3.1 Organisational Philosophy and Culture

Hopkins (2005) in defining organisational cultures advises that "social scientists insist that culture in general is a characteristic of groups, not of individuals. Organisations may have multiple cultures and cultures may overlap and fragment into sub-cultures, but always the discussion refers to the characteristics of a group or subgroup, not an individual" (Hopkins, 2005, p. 5). A further definition of culture as cited in Hopkins (2005) is that of Schein (1992) which advises that organisation culture as " the way we do things around here" (Hopkins, 2005, p. 7).

Cotton (2006) advises that "Organisational culture is a term that refers to the employees overall impression of how the organisation is run, the leadership practices, standard procedures and workplace culture (Cotton, 2006 p. 958). According to Cotton (2008) organisational culture has been shown to be more important than individual difficulties or stressors in determining an

employee's wellbeing. “Improving management styles and workplace practices reduces stress more effectively than teaching employees individual coping skills” and is the most important factor that influenced employee well-being (Cotton 2008, p.1)

For an organisation to be successful it must have in place methods of performing the work of the organisations, policy and procedures whether written or otherwise, practices and routines that the employees follow each day to perform the tasks, service or create the products of the organisation. Hopkins (2005) also uses the following terms to discuss the concept of culture “ observed behaviours, group norms, espoused values, formal philosophy, rules of the game, climate, embedded skill, habits of thinking, shared meanings and root metaphors” (Hopkins, 2005, p. 6).

As implied by Hopkins (2005) multiple cultures can exist and occur within an organisation at any point in time. Organisation culture can be in part created and influenced by team and individuals cultures and backgrounds, customs and practices, the product or services of the organisational, the values, mission statement and practices of the organisation and the underpinning principles of the organisation that drives performance and success.

Cultures within the organisations may be created and focus on aspects of the organisation such as safety management, workers’ compensation management, leadership and performance management and organisational practices.

How the organisation manages and creates its safety culture can be influenced by society and government. Times of boom or recession can impact the organisations safety culture and the resources that are committed to the safety culture. Government regulatory reviews and changes may impact of the safety performance and management for the organisation and the management of the safety functions.

The organisations management of health and wellbeing in the organisation and workers' compensation claims management can be impacted on by the economic climate. From the literature review it was discovered that numerous employees do not lodge workers' compensation claims despite being injured at work (Australian Bureau of Statistics, 2014). When it time of recession and where the fear of increased insurance policies the organisation may simply not encourage or prompt the employee to lodge the workers' compensation claims. Alternatively in a boom economy, organisations may be less likely to be concerned or impacted by increased premiums.

There are multiple reasons that an employees or team members may have incompatibilities with their values and the organisational culture(s). An example arises where the values of the employee and the organisation are not compatible. Where an employee has poor job fit or poor team/organisation fit, the incompatibility between the employee and their team and the organisation culture can lead to withdrawal, absenteeism and ill-health and injury (Cotton, 2006; Cotton & Hart, 2003; Health Safety Executive, 2006; Hom & Kinicki, 2001).

1.3.2 Personnel

The role of human resource personnel, and the effects of a lack of human resource personnel, was discussed in 6.3.3.3 and this information applies at the organisational level in this model.

1.3.3 Limited Personnel and Staff Levels

Similar to the importance of the role of human resource personnel other roles and positions in the organisation are equally important, whether this is a clerical administrative role or a senior management position in the organisation. Regardless of the position if there are not people in the role performing the required tasks and responsibilities this can leave the work un-actioned and create tensions within the organisation and other employees. The economic climate and whether in boom or recession can affect the ability of the organisation to fund employees to roles. When in times of recession it is less likely that the organisation will replace open positions and

consequently the duties of the role are assigned to other employees in the organisation (Godfrey, Merrill, & Hansen, 2009).

Where a role is not filled the repercussions on employees and work teams may means that they are performing work in addition to their own role. The challenge of performing addition tasks in the short term can be managed without considerable impact and inconvenience to the employees taking on the extra workload. However, over time if the role is not filled or the organisation lacks the budget to recruit a further employee into the position, the long term effects of performing extra tasks can lead to fatigue (Hom and Kinicki, 2001), absenteeism, ill-health and injury and the possibility of the lodgement of a workers' compensation claims (Cotton, 2006; Cotton & Hart, 2003).

Siegrist (1996) looks at studies on the effect of high effort and low reward on employees and their health. Siegrist provides one example of a person who for strategic reasons assumes extra work and additional responsibilities to compete for promotion prospects. Siegrist (1996) advises that "after years of performing extra work and failed aspirations were shown to be a frequent psychosocial risk constellation among victims of premature myocardial infarction" (Siegrist, 1996, p31).

1.3.4 Organisational Expectations

An organisation sets targets and expectations to meet financial, business and shareholder requirements. The economic climate can affect the organisation in achieving their targets and business expectations. The profit expectations of owners or shareholders effect the management of the organisation. Where owners/shareholders expectations on their investment are high and where the economic climate is in recession organisations may lack the budget and resources to implement OSH systems and training, invest in training or health and wellbeing programs and other identified initiatives (Godfrey et al., 2009).

When in times of economic boom often there are greater demand on products and services and meeting business targets can be easier to achieve. In times of economic boom where owners/shareholders return on investment is achieved or higher than expected returns, obtaining approval for funding employee initiatives improvement of internal organisational systems are more easily obtained (Godfrey et al., 2009).

When in times of economic recession management may have a focus on production to meet business targets and incentives, especially where there is a pressure to meet shareholders return on investment expectation (Godfrey et al., 2009). When there is a focus on production as opposed to safety frictions can result and may lead to employees feeling that meeting business targets are more important that the health and wellbeing and safety of the employee. This in turn can create employees to experience negative experiences, withdrawal from work and impact of the dynamics of the working team and the culture of the organisation (Cotton, 2008).

1.4 Operational Management

1.4.1 Induction and Training to the Workforce

In this research formal induction and training was determined to be a significant variable for organisations who conducted formal inductions and training had a protective effect on the incidences of LDCs. This has been discussed in 7.3.3 and the information previously discussed also applies at the organisational level of the model as it is important for new employees to receive an induction to the company in a language that they understand and ongoing education to keep up with new innovations and to be able to competently perform their work so that they are less likely to have work related injuries and ill health (Jansz, 2014).

1.4.2 Limited Management or Supervision

The role of supervision in preventing LDCs has been discussed in 6.3.3.4 and the information included in this section is applicable to having effective operational management.

1.4.3 Job Simplification

All jobs have a central purpose. When jobs are initially designed, they commonly fulfil a specific need or function. Over time, the job role may change in an unsystematic fashion. This can result in inefficiencies in the job, redundancies of other jobs, dissatisfied people, and difficulties in staffing and training. By specifying, clarifying or updating the original function of the job at the start of the redesign effort, it may be possible to eliminate the inefficiencies and at the same time rekindle the motivational aspects of the role (Reid et al., 2014).

Deskilling', is where job tasks have been narrowed due to the introduction of new technologies, leaving workers feeling disconnected from the finished product. Deskilling can lead to dissatisfaction due to increased levels of boredom and less challenging work demand (Morgeson & Campion, 2002).

Parker, Wall, and Cordery (2001) indicate that flexible forms of work design, such as empowerment, are increasingly appropriate in organisations seeking to complete in turbulent markets. A 'war for talent' in many industries place much more attention on creating work that is attractive to the right candidates. Conclusions reached in the research conducted by Parker *et al.* (2001) indicated that organisations making contributions to improving work design to ensure that the work was rewarding and fulfilling to the employee would deliver improved well-being and performance of the relevant employees.

1.4.4 Employee / Team Dynamics

Lee-Kelley (2006) explored the orientation of team members and the impact employee orientation had on team dynamics. Dependent upon the structure of the organisation and the tasks that are to be performed, if an organisational does not investigate employees and new candidates entering the organisation, their characteristics and work preferences, a disconnect between the new candidates and existing personnel can occur. This disconnect can create tensions and lead to multi-factorial consequences for the employee and their team. Some of these include friction, conflict with colleagues and supervisors and withdrawal behaviours. This friction can result in poor performance, absenteeism, conflicting, poor safety performance, ill-health and injury and a subsequent workers' compensation claim that may become long in duration (Lee-Kelley, 2006).

1.4.5 Autonomy / Self Governance

"Autonomy is the extent to which an employee can structure and control how and when they do their particular tasks. Highly autonomous jobs allow incumbents to determine the order, the pacing of tasks, specific procedures for accomplishing those tasks, scheduling, coordination with other employees and other conditions of work" (Spector, 1986, p. 1006).

There are a number of working conditions encounter on a daily basis which contributes to ill health and stress. These working conditions are called "stressors" and consist of those things that have a negative effect on a worker's physical or emotional well-being. In addition these working conditions or stressors are associated with two job characteristics: job control and demand (Heaney et al., 1993).

Job control determines how much or how little control a worker has over her/his job. It can be defined in terms of one's ability to make decisions about how work is done and the ability to use a range of skills on the job. Job demand determines how much or how little production or

productivity pressures there are on the worker and the quality of the physical work environment (Heaney *et al.* 1993).

In their research Spector (1986), investigated the perceived control of employee's and more specifically job design or autonomy and participative decision making. This research highlights numerous studies conducted on perceived control and their findings. Perceived control was found to be associated with high levels of job dissatisfaction; commitment; involvement; performance and motivation; low level of physical symptoms; emotional distress; role stress; absenteeism; intent to turnover; turnover. The study concluded that job design will help to improve performance and job satisfaction (Heaney et al., 1993)

1.5 Employee

In the causal diagram for job dissatisfaction/ job avoidance and long-duration workers' compensation claims (see Appendixes 6 and 7), it is evident that employees are affected by organisational management factors, that are influenced by company factors, that ae decided based on government laws, which are influenced by society expectations and the economic climate of the country. When organisational management supports employees, this research identified that claims were more likely to be of a short duration. Based on the findings of the literature review and of this research, the following employee factors were found to be significant:

1.5.1 Job Satisfaction

The effect of job satisfaction and dissatisfaction were discussed in 6.4.2 and in 6.4.3. What was discussed in these sections applies at the employee level of the model.

1.5.2 mployee Performance

The effect of employee performance management was discussed in 7.4.1 (Organisational philosophy and culture) and in 7.4.4 (Organisational expectations). The information included in these two sections also applies to employee performance in the model.

1.5.3 Family/Work Balance

From the literature review it was identified that job stress can also affect employee's home life. 'Bringing home the problems from work' may affect single people more as they tend not to have anyone to talk to about the problem and feel they are inadequate if they try and speak to their peers about the issue (Heaney et al., 1993). The pressure placed on employee due to social and economic systems can be based on people blaming themselves or co-workers for problems they face in dealing with stressful working conditions. Consecutively, management may use "blame the worker" attitude to control and divide workers upon racial, ethnic, sexual, age, religious, and occupational differences. (Heaney et al., 1993, p. 496).

According to Greenhaus *et al.* (1985) the meaning of work-family conflict is the *"simultaneous occurrence of 2 or more sets of pressures such that compliance with one would make more difficult compliance with the other."*(Greenhaus & Beutell, 1985, p. 77).

Greenhaus' *et al.* (1985) examined the literature on conflict between work and family roles suggested that "work-family conflict occurs when:

(a) Time devoted to the requirement of one role makes it difficult to fulfil requirements of another;

(b) Strain from participation in one role makes it difficult to fulfil requirements of another, and

(c) Specific behaviours required by one role make it difficult to fulfil the requirements of another" (Greenhaus & Beutell, 1985, p. 76)

Work-family conflict occurs when the role pressures from the work and family domains are mutually incompatible in some respect. Results of Greenhaus *et al.* literature review "suggests three major forms of work-family conflict are time-based conflict, strain-based conflict and behaviour-based conflict" (Greenhaus & Beutell, 1985, p. 77).

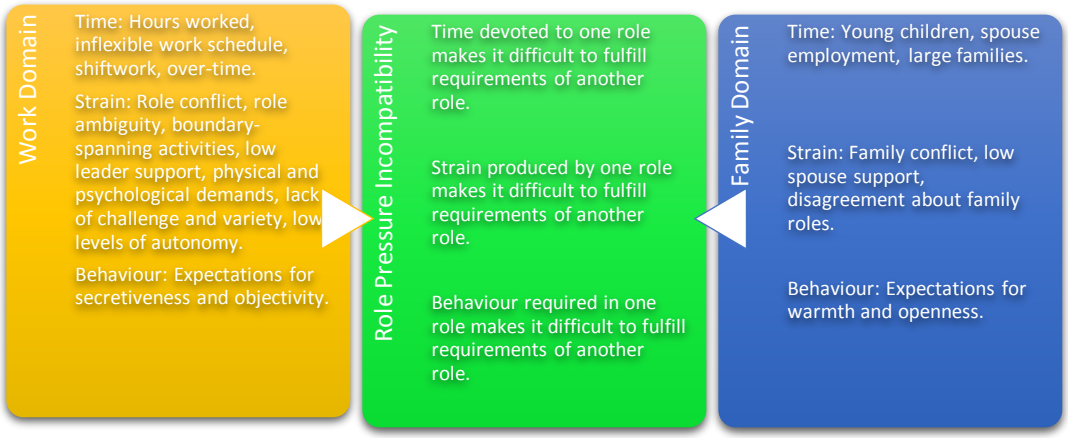

Figure 23:

Work-Family Role Pressure Incompatibility (Greenhaus & Beutell, 1985, p. 78).

Benefits of better work-family balance for businesses include

- Improved staff retention, reduced turnover;
- Reduced absenteeism, less stress, improved health;
- Higher morale and increased motivation;
- Better workplace cooperation;
- Recognition as an employer of choice, with innovative and family-friendly work practices;
- Greater capacity to meet customer demands through flexible working arrangements;
- Recognition as a good corporate citizen (The Work and Family Team, 2003).

Benefits of better work-family balance for Employees and Families include:

- Greater job satisfaction;
- Less stress and better health;
- Improved personal and family relationships;
- Increased opportunities for participating in family and community activities; and
- Greater feelings of control in terms of work, family and responsibilities (The Work and Family Team, 2003).

Professor Barbara Pocock outlined the requirements for people living with family responsibilities in the Work and Family Balance Manual (2007). These are as follows:

- A living wage, with some predictability and security and the opportunity to live free of financial stress;
- Security of employment, which is vital to family formation;
- Adequate, predictable and common family time;
- Flexible working conditions that allow workers to deal with unexpected or predictable family needs, including the opportunity to change working time;
- The avoidance of excessive working hours;
- Adequate paid and unpaid leave to deal with personal and family sickness, birth, early parenting, death and other times of intensive family care or incident;
- Quality, accessible, affordable childcare (Industrial Relations Victoria, 2007).

A review of WorkCover WA (2014) and national scheme data shows that no data is collected on ill or injured employee's family commitments or family status and therefore no comparisons can be made with this research.

1.5.4 Managers, Supervisors and Colleagues Support

"Social support at the workplace has direct positive effects on health, and buffers the deleterious effects of exposure to worksite stressors" (Heaney et al., 1993, p. 497). Heaney *et al.* (1993) indicates support can be conceptualised as a resource that social support available to employees may facilitate effective behaviours for dealing with stress in three ways. First, social support can help an employee to modify a stressful situation. For example, co-workers and supervisors can assist in accomplishing a task, provide guidance and advice, and provide access to diverse information and new contacts. Second, social support can help an employee develop a new perspective on a stressful situation. Co-workers and supervisors can help in defining role expectations and can temper the seriousness or threat of certain organisational demands (Wells, 1982). Lastly, the provision of social support may decrease the emotional upset associated with a problematic situation. (Heaney et al., 1993, p. 497).

1.5.5 Physiological and Psychosocial Factors

Astrande (1989) concluded that studies have shown that hectic and psychologically demanding work, low decision latitude making and combinations of psychosocial factors are results of mental strain and cardiovascular morbidity and mortality. Demands on health can be moderated by the degree of control the employee has over their work with a combination of high work demands and low level of permitted discretion in the control of one's own work comes the highest risk for ill health (Spector, 1986). The research of Smith *et al.* (2014) investigated the impact that age and higher levels of physical demand had on return to work and recovery of employees on workers' compensation claims. The results of this research revealed older age and higher physical demands were both associated with worse injury outcomes.

Appendix 7 – Literature Review – Summary of Research and Findings

Author, Year & Country	Objective/s	Study Design	Participants	Instruments	Statistical Analysis Used	Key findings in relation to Individual, Organisational and Psychosocial factors	Research Significance
Bernacki, Yuspeh and Toa 2007 USA	Identify and qualify attributes that lead to unanticipated increases in workers' compensation claim costs.	Longitudinal Cross sectional study	36,329 claims from the Louisiana Workers' compensation corporation	Researchers developed and used	Odds ratios used and confidence intervals	Attorney involvement, Male gender, older age, marital status, lower back injuries, smaller organisation, larger premium paid by employer and delays in reporting the injury were associated with higher cost workers' compensation claims	Not reported
Bigos et al 1991 USA	Identify risk factors for reporting acute low back pain at work in aircraft employees.	Longitudinal cohort study	3020 workers	Minnesota Multiphasic Personality Inventory and Work APGAR (measure of well-being) (included cardiovascular risk questionnaire, physical examination and anthropometric testing)	Kaplan meier curves and cox proportional hazard regression	Previous history of back problem was seen as an influence to injury and recovery. Likewise the employee's perception on whether the employee enjoyed their work, the level of psychical activity associated with the role, work relation were also seen as factors affecting injury and recovery.	Prior history of back problem (p<0.0001); Enjoyed work (p,0.005); Time shared with peers (p,0.005)

Hashemi et al 1997 USA	Describe the natural history of LOD associated with compensable LBP	Prospecti-ve cohort study	106,961 claims from one workers' compensation company	Researchers developed and used		Reinforce that the best early intervention is to prevent disability from occurring in the first place or, if it occurs, to find ways to limit its duration A low-cost, early intervention technique can be achieved through the provision of light-duty or part-time work and early return-to-work programs. Higher cost interventions (such as intensive multidisciplinary rehabilitation programs for those with nonspecific LBP) may be more cost effective than conventional care if instituted during the earlier stages of disability, eg, at the third month, when the percentage of cost (2.16%) first overtakes the percentage of claims (2.04%)	**Not reported**
Schultz, Crook, Meloche, Berkowitz, Milner, Zuberier and Meloche 2002 Canada	To validate empirically a biopsychosocial model for prediction of occupational low back disability.	Cohort longitudinal study	192 workers with subacute low back injuries and 61 with chronic back pain	The standardised comprehensive physical examination, the pain behaviour taxonomy, the workplace protocol and the psychosocial protocol were all developed.	Odds ratio	Psychosocial and occupational variables were found to be associated with poorer recovery and claim outcomes. Perception of health change due to back pain and expectation of recovery was found to be a more powerful and consistent predictor of poorer claim outcomes. Co-workers support and skill discretion in this study was found to be weakly associated with poor disability outcomes. Length of employment and Tenure was not seen as a predictor of	SF-36 Vitality (p=0.006); SF-36 Health Transition (p=0.023); Feel job threated due to injury (p= 0.062); Problem better or worse than

						injury outcome or duration of claim. Models developed from this research to predictive return-to –work were found to be significantly better at identifying workers who would return to work post injury.	expected (p=0.002); Guarding (p=0.003)' Perception of severity of injury (p=0.041); Time to complete walk (p=0.022); Right leg sciatica (p=0.044);
Schultz, Crook, Meloche, Berkowitcz; Milner, Zeberbier & Milne 2004 Canada	Validate a multivariate predictive model that identified injured workers at heightened risk of occupational low back disability.	Cohort longitudinal study	253 subacute and chronic pain injured workers	Combination of questionnaires (ie MCGill Pain Questionnaire [SF MPQ], the Pain Drawing, Von Koff Pain Grade, Centre for Epidemiology Studies Depression Scale [CES-D], The State of the State Trait Anxiety	Multiple regression	The key psychosocial predictors identified were expectations of recovery and perception of health change. Also implicated, but to a lesser degree, were occupational stability, skill discretion at work, co-worker support, and the response of the workers' compensation system and employer to the disability. All psychosocial models were better at predicting who will return than who will not return to work.	Not reported

				Inventory [STAI]; Duke-UNC Functional Social Support; SF-36; Disability Questionnaire; Pain Disability Index; Job Content Questionnaire; Expectation of Recovery, Workers Compensation Board Employer Response to Claim Scale.			
Schultz et al 2005	To test the predictive validity of a Psychosocial Risk for Occupational Disability Scale in the workers' compensation environment.	Cohort longitudinal	111 workers	Expectations of Recovery Scale; Workers Compensation Board / Employer Response to claim scale; SF-36 short form of Health Measure, Perception of Injury Severity Scale; Waddell Symptoms;	Logistic regression	Results of the study revealed that of those who had not returned to work there was no significant association between return to work status and demographic information such as age, marital status, number of children. Variables consider of significance were union membership, expectation of recovery, employer support and response, physical functioning, vitality, mental health and health transition.	Union membership (p= 0.091), Expectation Recovery (p<.001); WCB/Employer Response to claim (p=.018), perception of injury severity (p,.001).

				Distress Scale; Job Content Questionnaire.			
Shaw et al 2005 USA	Determine whether disability risk factors provided by patients and clinicians at a first medical visit for acute occupational low back pain predict outcomes.	Inception cohort	183 female and 385 males	Pain Questionnaire; Clinician Questionnaire	Linear multiple and binary regressions	Early screening for disability risk factors may be helpful to identify those at risk of delayed recovery. Job factors, pain coping strategies and expectations for recovery were identified as factors for further research.	**Work factors:** Availability of modified duties (p.001); Days before reporting (p.016); Job tenure (p.020); **Patient rating scales** RTW likely in 4 weeks (p.0.001) Physical job demands (p.002); Pain (p.028); **Demographic Variables** Age (p.030); **Clinician Exam** Ability of alternative duties (p.001); Estimated days until RTW (p.021);

Hom & Kinicki 2001 USA	Determine if job dissatisfaction progresses into turnover.	Cross sectional survey	438 employees	Researchers developed and used	Exponential regression, Cox regression	Inter-role conflict and job avoidance influenced turnover indirectly.	Not applicable
Li et al 2001 Taiwan	Are odds ratios of job stressor frequency, job stress reaction and job dissatisfaction higher in workers with non-fatal injury that workers free of injury?	Cross sectional survey	568 cases and 1136 controls	Job Satisfaction Survey Instrument, JSRI and Job Satisfaction Survey	Odds ratios and Confidence intervals	The severity of stress reaction is more associated with occupational non-fatal injury than is the frequency of stress or job dissatisfaction.	Not applicable
Smith et al 2014 Canada	Examine if physical occupational demands moderate the relationship between age and the consequences of injury using workers' compensation data in British Columbia.	Case study	373,672 claims from Worksafe British Columbia (352,552 SDC claims and 21,120 LDCs)	Researchers developed and used	Multivariate and logistic regressions	Older workers, high occupational demands were associated with worse recovery and injury outcomes.	For limited or light strength and medium to heavy strength, health care costs for workers cover 50 ($p<0.001$), Wage replacement was ($p<0.001$),
Wickizer et al 2011	Evaluate the effect of a quality improvement intervention that provided financial	Prospective nonrandomised intervention	105,606 claimants and 2297 allied health providers	Systematic review of published literature	Logistical regression	The involvement of COHE's (Centres of Occupational Health and Education) also referred to as quality health care providers showed substantial cost savings for disability claims.	COHE patients were less likely to be off work and on disability at 1

USA	incentives to providers to encourage adoption of best practices, coupled with organisational support and care management activities, aimed at reducing work disability in workers' compensation system in Washington.					Patients treated by COHE providers were less likely to experience extended work disability.	year post receipt of the claim (p=0.003). COHE patients experienced a reduction in disability days (p=0.005) and a reduction in total disability and medical costs of $510 per claim (p,0.01); For patients with LBP the reduction on disability days were 29% or (p=0.003). Patients treated by COHE and fewer disability days (p=0.001

****** Table presented and formatted in order of strength of study.

Systematic Reviews of Literature

Author, Year & Country	Objective/s	Study Design	Partici-pants	Instruments	Statistical Analysis Used	Key findings in relation to Individual, Organisational and Psychosocial factors
Bongers et al 1993	Establish whether the epidemiologic literature presents evidence of an association between psychosocial work factors and musculoskeletal disease.	Systematic review of published literature	44 cross sectional and 15 longitudinal studies	Researchers developed and used	Cross tabulation	Further research should be done looking at the relationship between musculoskeletal disease and the following psychosocial factors: Factors at work, mechanical load, and stress symptoms.
Durand et al 2002	Interview was designed to help clinicians detect important disability factors in subacute and chronic patients with work-related musculoskeletal disorders.	Systematic review of published literature	30 articles	Work Disability Diagnosis Interview		Initial application demonstrated a high prevalence of sociodemographic, work-related, and psychosocial factors that may contribute to prolonged work absence.
Hartvigsen et al 2004	Critically review prospective cohort studies published between 1990 and 2002 to determine 1. The level of evidence for exposure to poor psychosocial work environments influencing the presence of low back pain or its consequences and 2. To estimate the strength of these associations.	Systematic review of published literature	40 papers, 10 of good quality	Researchers developed and used	Odds ratios	No associations were found between lower back pain and perception of work, organisational aspects of work and social support.
Linton 2001	Summarise current knowledge concerning the role of psychological variables	Systematic review of literature	37 studies	Researchers developed and used	Cross tabulation	The following conclusions were determined based on the evaluation of the study:

	in the aetiology and development of neck and back pain					1. Psychosocial variables are clearly linked to transition from acute to chronic pain; 2. Psychological factors are associated with reported onset of back and neck pain; 3. Psychosocial variables generally have more impact than biomedical or biomechanical factors; 4. No evidence exists to support the site of "pain prone" personality link; 5. Results are mixed with regard to whether personality traits are risk factors 6. Cognitive factors (attitudes, cognitive style, fear avoidance beliefs are related to the development of pain disability 7. Depression, anxiety, distress and related emotions are related to pain and disability; 8. Sexual or physical abuse may be related to chronic pain and disability; 9. Self-reported poor health is related to chronic pain and disability. Psychosocial factors may be used as predictors of the risk for developing long-term pain and disability.
Schultz et al 2007 Canada	Provide an evaluation of the evolution and the state of the art of health and disability models with a focus on specific models of RTW	Systematic review of published literature	Not disclosed	Researchers developed and used	Cross tabulations	Implications for diagnosis, treatment, and disability compensation, are the key perspectives analysed for the following specific models of RTW: biomedical, psychosocial, forensic, ecological/case management, biopsychosocial, and two more recent models developed by the Institute of Medicine and the World Health Organization, respectively.

Sullivan et al 2005	**1. Describe different psychosocial interventions that have been developed to prevent prolonged work disability.** **2. Identify future research directions that might enhance the impact of programs targeting psychosocial risk factors for work disability.**	**Systematic review of published literature**	**61 articles**	**Researchers developed and used**		**Further research into the primary, secondary and tertiary methods of prevention to prevent work disability and return to work are required. Such research should focus on Type I (worker related factors) and Type II (workplace or system related) psychosocial risk factors** **Factors such as social support in the workplace, job satisfaction, job stress and work autonomy have been showed to be associated with return to work outcomes. Opportunities exist to modify psychosocial risk factors even prior to the onset of symptoms or the submission of the compensation claim. .**
Steenstra et al 2005	Assess the evidence on factors that predict duration of sick leave in workers in the beginning of a low back pain related sick leave episode.	Systematic review of published literature	1063 publications of which 240 fitting the inclusion criteria	Systematic review of published literature	Confidence intervals	Increased disability levels associated with back pain are associated with, older age, female gender, more social dysfunction and more social isolation, heavier work and higher workers' compensation wages were all predictors of longer duration claims.

Shaw, Linton & Pransky 2006 Varied English speaking countries	To assess the extent to which effective strategies for reducing work absence after acute low back pain match empirical risk factors.	Systematic review of published literature	62 studies	Researchers developed and used	Cross tabulation	Nine articles were located for both of the searches and from these a set of variables were determined for reducing sickness absence and improving return to work outcomes. These were categorised and listed as follows: **Personal Interventions:** Physical approaches (exercise and physiotherapy) Psychological interventions to to alter pain behaviour Increase activity levels Improving coping skills **Engineering Interventions** Workplace redesign Temporary reduction in psychical work demands **Organisation and Administrative Interventions** Employer practices including modified duties and RTW coordination Communication Coordination of care
Shaw et al 2009	Develop a consensus plan for research and practice encouraging routine screening of occupational factors associated with long term back disability.	3 day working party with leading clinicians and a systematic review of published literature	21 leading research-ers	Researchers developed and used		Seven variables were identified to be included in the early screening process: • Physical job demands, • ability to modify work, • job stress, • workplace social support or dysfunction, • job satisfaction, • expectation for resuming work and • fear of re-injury.

Appendix 8 Descriptions of several existing patient screening methods for LBP in relation to occupational factors (Shaw et al, 2009).

Title	Description	Overall assessment domains	Occupational factors included	Key findings
Örebro Musculoskeletal Pain Questionnaire (OMPQ) [41]	24-item patient self-report questionnaire for risk stratification	Patient background, physical functioning, fear-avoidance beliefs, experience of pain, reactions to pain, work	Heavy or monotonous work, RTW expectation, unable to work with current pain level	Sensitivity 77%, specificity 75%. Workplace predictors are heavy or monotonous work, RTW expectation, and unable to work with current pain level
Psychosocial Risk for Occupational Disability Instrument (PRODI) [42]	122-item patient self-report questionnaire for risk stratification	Sociodemographic, medical history and physical exam, psychosocial, pain behavior, work	Skill discretion, decision authority, job security, co-worker and supervisor support, control, overall support, resources, RTW expectation, employer response	Sensitivity 61%, specificity 89%. Workplace predictors are RTW expectations and employer response
Back Disability Risk Questionnaire (BDRQ) [43]	16-item patient self-report questionnaire for risk stratification	Health perception, psychosocial factors, work factors	Physical work demands, RTW expectation, availability of modified duty, delay in reporting problem, negative supervisor responses	Sensitivity 74%, specificity 70%. Notable workplace predictors are modified duty availability, delay in reporting to employer, and physical job demands
Guide to assessing psychosocial yellow flags [23]	OMPQ questionnaire followed by clinical interview for screening and targeting patients	Pain attitudes and beliefs, behaviors, compensation issues, diagnosis and treatment, emotions, family, work	Manual work, bio-mechanical demands, shift work, negative employer response, modified duty, unsupportive work environment, belief that work may be harmful, fear of re-injury, work history	Inter-rater agreement fair or better. Work psychosocial risk factors predict likelihood of future work absence, but not duration of work absence
Obstacles to RTW Questionnaire(ORQ) [45]	55-item patient self-report questionnaire Main objective: risk stratification	Physical and psychosocial factors affecting musculoskeletal pain in the workplace	Difficulties at work return, physical workload and harmfulness, social support, worries about sick leave, work satisfaction, RTW expectation	Sensitivity 68%, specificity 68%. Notable workplace predictors are RTW expectation, social support, physical workload and perception that work is harmful
Work Disability Diagnosis Interview [44]	6 patient questionnaires followed by a 3-hour clinical interview Main objective: risk stratification	Demographics, work history, pain syndrome, general health and health history, family and social history, medical history and physical examination, work environment, patient perception of disability status	Job satisfaction, work history, occupation and industry type, prior attempts to RTW, absence duration, job demands, ergonomic risk factors, work schedule, job control, environmental conditions, diversity of work tasks, working relationships	Prediction of outcomes still under study. Most frequently reported workplace problems are job demands, mismatch with physical capacities, long duration absence
Participatory Ergonomics (PE) approach [47]	On-site inspection and worker interview Main objective: risk stratification	Physical job demands, ergonomic factors, perspectives of worker and supervisor, perceived barriers to RTW	Physical job demands, ergonomic risk factors, perspectives of worker and supervisor, perceived barriers to RTW	Intervention involving PE assessment shown to generate more work modifications and improve RTW outcomes

Appendix 9 – Table 58. Binary Logistic Regression – Employer Variables 1st Iteration.

	B	S.E.	Wald	df	Sig.	Exp(B)	Lower 95% CI	Upper 95% CI
Legislation	17.580	21087.652	0.000	1	0.999	43139169.71	0.000	-
HR Personnel	-2.352	1.697	1.920	1	0.166	0.095	0.003	2.65
Number of Days Annual Leave	-0.188	0.140	1.799	1	0.180	0.828	0.629	1.09
Contractors	2.222	1.594	1.943	1	0.163	9.227	0.405	209.95
Induction	-0.935	2.855	0.107	1	0.743	0.392	0.001	105.71
Pre-employment Medical	-2.420	2.144	1.274	1	0.259	0.089	0.001	5.94
Job Description Provided	3.548	2.308	2.364	1	0.124	34.752	0.377	3199.96
Completion of duties	-1.894	0.952	3.960	1	0.047	0.150	0.023	0.97
Fulfil responsibilities	-0.261	1.112	0.055	1	0.814	0.770	0.087	6.81
Follow instructions	-0.116	0.903	0.017	1	0.897	0.890	0.152	5.22
Provided solutions	-1.045	1.453	0.517	1	0.472	0.352	0.020	6.07
Work does best	0.940	1.385	0.460	1	0.497	2.559	0.170	38.60
Fail to perform	-0.775	0.808	0.919	1	0.338	0.461	0.095	2.25
Constant	4.228	3.730	1.284	1	0.257	68.571		

Appendix 10 - Plan for Implementation of Model of Management for the Prevention of LDCs

Background information.

Organisations are increasingly recognising the need to place greater emphasis and analysis on the effect that day-to-day work and the working environment has on an employee's health, wellbeing and productivity. Arising from the findings of this research and based on extensive experience working with organisations in the management of human resources; including fitness for work, injury prevention, injury management and workers' compensation claim management functions; the author has developed the Model of Management.

Elements incorporated into the model of management includes activities that constitute best practice employee management and employee engagement, techniques that organisations can implement to support their leaders and teams and the necessary training and resources to assist employees to maintain good health and productivity. In looking to adopt systems and strategies specific to organisations it must be noted that all organisations and business departments are unique, due to the nature of the business, the people in the organisation and department and the operation carried out by that organisation or department. Therefore, the interventions outlined in the model of management may need to be modified or adapted to meet the specific needs of the organisation or department.

Organisations that the author worked extensively with over a history of ten to twelve years showed the benefits of having a systems approach to the prevention and management of ill-health and injuries in the workplace. The organisations not only achieved the prevention of LDCs, but eliminated litigation, reduced workers' compensation premiums, improved employee engagement, workplace culture and

moral. Communication and rapport between management and employees was also seen to improve, as did absenteeism, ultimately improving productivity.

In all of these organisations there was a similar lifecycle model of implementation and management. Additionally a similar process for the overall management of ill-health and injuries in these workplaces occurred. This lifecycle can be summarised by a four-stage approach.

STAGE 1

Implementation of Best Medical Management and Return to Work Strategy

Allocated hours set for management of ill and injured employees should be utilised to ensure that the best medical management is in place as well as a return to work strategy for each open and active claim.

For employees who have reached maximum medical improvement and no durable return to work option is viable, assistance should be provided to support them to be as productive as possible in sustainable employment and/or until the ultimately resolution of their claim.

Stage one is time consuming and requires the development of a rapport with all existing ill or injured employees with a current open claim to understand the complexities of the issues or barriers to recovery and return to work. Where barriers to recovery present, it is essential to have a good rapport with the ill or injured employee to be able to engage them in the complex and difficult process of working with GP's, occupational physicians, specialists and sometimes 'second opinion' reviewing medical consultants, to determine the best methods of treatment for ensuring optimal recovery and return to work outcomes.

STAGE 2

Implementation of Early Intervention Management system for Fitness for Work and the Prevention of Ill-Health and injury

The second stage of the lifecycle of the management of ill health and injuries within the case study organisations is the engagement of senior and line management in the process. This is achieved both informally during meetings and discussion on claims and formally during training sessions aimed at raising their awareness of issues enabling them to more readily identify employees at risk of illness and injuries in the workplace.

Risk of illness and injury is reduced with greater awareness and education of senior management in early identification of risk factors associated with deteriorating fitness for work. This provides management with the opportunity to actively participate with the worker in the management and solving of these risk factors, preventing onset of illness or injury.

As senior personnel become more active and engaged in the management and prevention of escalation of illness and injury, more time could be devoted to the introduction of proactive and preventative strategies to avoid workplace injury and ill-health which is discussed following in Stage 3 of the lifecycle.

STAGE 3

Proactive prevention of ill-health and injuries

This stage is characterised with less time involved in management of ill-health and injuries due to the:

- Return to work of employees with existing ill-health and injuries
- Closure of claims
- Reduction in ill-health and injuries (due to early detection by senior management preventing the deterioration of ill-health and injury)

With a reduction in claims and increased return to work outcomes for employees, time can be spent on the proactively prevention of work related ill health and injuries. This includes the development of proactive strategies and systems, including culturally specific strategies to meet the individual needs of the organisation, further improving the process of identification and prevention of ill-health and injuries.

The proactive prevention of ill-health and injuries is achieved by conducting meetings with key stakeholders including directors and the organisation owners, managers, supervisors, consultants, employee representatives, ill or injured employees, to discuss, develop and implement systems of effective pre-claims intervention and management.

STAGE 4

Continuous Review and Improvement

The fourth stage of the implementation is categorised by the management of new incidents of ill-health and injury and the continuous improvement of systems previously implemented to meet the needs of the organisation.

With systems in place to reduce or eliminate high risk illness or injuries, new occurrence of ill-health and injury should present as minor taking less intervention and time to resolve.

At this point the major activities should be the continuous improvement of the implemented system for the purpose of managing health and wellbeing, recruitment strategies, comprehensive pre-employment and post-employment medical systems and documentation; and injury and claims management procedures.

Due to budget constraints or limited resources, some of the strategies or interventions may not be available or cannot be implemented. Where some or all of the interventions cannot be implemented, more time and resources may need to be implemented on other initiatives to create counter balance in the management of employee ill-health and injuries.

Appendix 11 - Awards Won Related to Effective Return to Work Programs.

Using the results of this research the researcher has won the following Awards.

Australian Government Seafarers Safety, Rehabilitation and Compensation Seacare Awards (24 October 2012).

Highly Commended Award for Best Rehabilitation and Return to Work Award

- Submission titled: Return to Work Coordination of Injured Employee.

Australian Government Seafarers Safety, Rehabilitation and Compensation Seacare Awards (20 September 2014).

Winner – Claims Manager of the Year