Early intervention vocational rehabilitation for people with newly-acquired spinal cord injuries

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In loving memory of my grandma Eileen Slack, whose wit, wisdom and ambition inspired me to want more than I have, and to be more than I am.
Abstract

Work is increasingly viewed as an important part of life after spinal cord injury (SCI). A vast, multidisciplinary research field has highlighted the barriers and facilitators of returning to work (RTW) for this population, yet employment rates remain consistently low. The development of targeted vocational rehabilitation (VR) interventions has increased in the twenty-first century to address this issue, with one such family of interventions operating within primary rehabilitation. Early intervention vocational rehabilitation (EIVR) aims to intervene at the earliest appropriate time after injury to ultimately diminish the latency between injury and RTW. The outcomes of this emerging field are promising, but the research supporting these interventions is focused largely on clinical outcomes, potentially overlooking the experiences of the consumer. Qualitative research could complement the existing research base by providing the consumer’s viewpoint on EIVR interventions, centralising the consumers’ perspective in the ongoing development and refinement of EIVR.

This study aimed to explore the consumer’s account of EIVR in the words of participants of the Back2Work program, an EIVR program operated in South-East Queensland, Australia. The research questions related to participants’ experiences of the program and their subsequent RTW pathways post-discharge. The process of researching these questions revealed a methodologically complex literature field, and implied the existence of common mechanisms that underpin the success of EIVR. Thus, the project was undertaken in three phases in order to a) clarify the extant literature base and establish conceptual frameworks for EIVR, and b) elucidate the consumer’s viewpoint of EIVR. To address the research questions, the study utilised
a large systematic literature review and a qualitative, longitudinal design. The findings of the systematic review (Phase 2) were used to further inform the development of the qualitative project (Phase 3).

The Phase 3 design aimed to capture participants’ attitudes and experiences within one year of discharge from the hospital-based EIVR program. Participants were interviewed at three time points—as close to discharge from hospital as possible, three months after the first interview and again three months after the second interview. Though efforts were made to recruit participants as close to discharge as possible, recruitment difficulties meant that some participants were recruited later post-discharge than others. Participants were asked to describe their RTW journeys thus far, reflect on challenges and areas of need, and highlight sources of support in their RTW journeys. The data were analysed using an interpretative phenomenological framework.

The findings revealed two distinct trajectories of RTW: a potential ‘fast track’ involving return to the prior employer, and a more complex pathway when employment with a new employer or a different role was sought. Analysis revealed a trajectory of increasing readiness to engage with services, plan and eventually enact a RTW. Importantly, data suggested that this trajectory was staged, with distinct attitudinal shifts at each stage. These were contextualised within the transtheoretical (‘stages of change’) model of health behaviour change, providing targets for potential intervention to increase participant readiness. EIVR was valuable in supporting participants to progress through planning and enacting their RTW. Participants described a hope-inspiring process of planning, goal setting, strategising and support when speaking to the employer. The findings also suggested that EIVR reaches beyond pragmatic vocational support to also inspire hopefulness and empower
consumers, working towards restoring autonomy during a time when participants’ independence was challenged.

EIVR is theoretically underpinned by the notion that those who RTW sooner generally do so with their previous employer. The person’s attachment to their employer, or occupational bond, is capitalised upon to preserve pre-injury jobs. Despite the importance of the occupational bond within EIVR, there is very little research that directly investigates the concept. Rather, there are many smaller studies that explore concepts which conceptually overlap or are adjacent to occupational bonding. This study affirmed the existence of the occupational bond, and extended the conceptualisation of this construct to include attachment to the world of work in general. It seems that EIVR can promote supportive contact with the employer, and reinforce the salience of work within consumers’ rehabilitation programs, to protect the occupational bond and facilitate strong connections to work, ultimately encouraging RTW.

This study addressed the knowledge gap relating to consumers’ perspective of EIVR services. It supported the early timing of EIVR, concluding that readiness to RTW is a staged process, beginning with readiness to engage with VR and moved through to readiness to implement the RTW program. The findings of this highlighted the role of EIVR in inspiring hope and empowering consumers after SCI as complementary to the broader rehabilitation program. Also complementary is the use of employment-related goals, which consumers report are very meaningful, and therefore, drive motivation to engage with rehabilitation. The study affirmed that EIVR addresses a clear need in early rehabilitation to support consumers’ working lives, providing them with clarity and hope regarding their employment situation and a sense of confidence in their long-term career pathways.
Statement of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Julia Bloom

Date: 20/12/2019
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Contents

Abstract ........................................................................................................................................ iii

Statement of Originality ............................................................................................................. vi

Acknowledgements .................................................................................................................. vii

Contents ....................................................................................................................................... viii

List of Tables .............................................................................................................................. xvi

List of Figures ............................................................................................................................. xvii

List of Abbreviations .................................................................................................................. xviii

List of Articles Included in the Thesis ....................................................................................... xix

Chapter 1: Introduction and Background .................................................................................... 1
  1.1 Spinal cord injury ................................................................................................................... 2
    1.1.1 What is spinal cord injury? ............................................................................................... 2
    1.1.2 Employment after SCI .................................................................................................... 3
  1.2 Rehabilitation ......................................................................................................................... 6
    1.2.1 Overview ....................................................................................................................... 6
    1.2.2 Philosophy and values ................................................................................................... 7
    1.2.3 Vocational Rehabilitation ............................................................................................... 8
    1.2.4 Vocational Rehabilitation after Spinal Cord Injury ....................................................... 9
    1.2.5 What is Early Intervention Vocational Rehabilitation? .................................................... 9
  Statement of Contribution to Co-Authored Published Paper Included in Chapter 1 .......... 11
  1.3 Integrated Services and Early Intervention in the VR of People with Spinal Cord Injuries
    Introduction ................................................................................................................................ 12
<table>
<thead>
<tr>
<th>Chapter &amp; Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>14</td>
</tr>
<tr>
<td>Spinal Cord Injury and Employment</td>
<td>14</td>
</tr>
<tr>
<td>The Benefits of Work</td>
<td>15</td>
</tr>
<tr>
<td>Early intervention</td>
<td>15</td>
</tr>
<tr>
<td>Early Intervention in Other Populations</td>
<td>16</td>
</tr>
<tr>
<td>Early Intervention in Practice</td>
<td>17</td>
</tr>
<tr>
<td>Benefits of Early Intervention</td>
<td>18</td>
</tr>
<tr>
<td>Challenges in Early Intervention</td>
<td>19</td>
</tr>
<tr>
<td>Methodological Considerations</td>
<td>19</td>
</tr>
<tr>
<td>Implications</td>
<td>21</td>
</tr>
<tr>
<td>Conclusion</td>
<td>22</td>
</tr>
<tr>
<td>References</td>
<td>24</td>
</tr>
<tr>
<td>1.4 Follow-up to narrative review: EIVR processes</td>
<td>30</td>
</tr>
<tr>
<td>1.5 Study Aims and objectives</td>
<td>31</td>
</tr>
<tr>
<td>1.6 Thesis structure</td>
<td>34</td>
</tr>
<tr>
<td>1.7 Summary</td>
<td>38</td>
</tr>
<tr>
<td>Chapter 2: The Phase 2 Systematic Review</td>
<td>39</td>
</tr>
<tr>
<td>2.1 Systematic review method</td>
<td>40</td>
</tr>
<tr>
<td>2.1.1 Inclusion criteria</td>
<td>41</td>
</tr>
<tr>
<td>2.1.2 Search strategy</td>
<td>42</td>
</tr>
<tr>
<td>2.1.3 Screening</td>
<td>43</td>
</tr>
<tr>
<td>2.1.4 Quality appraisal</td>
<td>43</td>
</tr>
<tr>
<td>2.1.5 Database categories</td>
<td>45</td>
</tr>
<tr>
<td>2.1.6 Analysis</td>
<td>46</td>
</tr>
<tr>
<td>2.1.7 Findings</td>
<td>46</td>
</tr>
</tbody>
</table>
Statement of Contribution to Co-Authored Published Paper Included in Chapter 2 ........48

Investigating Employment Following SCI: Outcomes, Methods and Population

Demographics ...........................................................................................................48
2.2 Article..................................................................................................................49
Abstract.....................................................................................................................49
Introduction ...............................................................................................................50
Method.......................................................................................................................52
Analysis.....................................................................................................................56
Results.......................................................................................................................56
Discussion...............................................................................................................67
References ...............................................................................................................75
2.3 Update ..............................................................................................................81
  2.3.1 Method..........................................................................................................81
  2.3.2 Results..........................................................................................................81
  2.3.3 Employment outcomes ..................................................................................84
  2.3.4 Who is and is not represented within the research?.......................................84
  2.3.5 Differences to earlier review .........................................................................85
  2.3.6 Similarities to earlier review .........................................................................86
2.4 Summary and conclusions................................................................................87
2.5 The Next Steps .................................................................................................89

Chapter 3: Conceptual Frameworks for EIVR.........................................................90

3.1 Occupational bonding .....................................................................................91

Statement of Contribution to Co-Authored Published Paper Included in Chapter 3 ......92
3.2 Article..................................................................................................................93
Abstract.....................................................................................................................93
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4 Reflexivity</td>
<td>174</td>
</tr>
<tr>
<td>4.5 Research Design</td>
<td>176</td>
</tr>
<tr>
<td>4.5.1 The research context</td>
<td>176</td>
</tr>
<tr>
<td>4.5.2 Design</td>
<td>176</td>
</tr>
<tr>
<td>4.6 Participants and Recruitment</td>
<td>177</td>
</tr>
<tr>
<td>4.7 Ethics</td>
<td>179</td>
</tr>
<tr>
<td>4.7.1 Approval</td>
<td>179</td>
</tr>
<tr>
<td>4.7.2 Ethical considerations</td>
<td>179</td>
</tr>
<tr>
<td>4.7.3 Compensation</td>
<td>180</td>
</tr>
<tr>
<td>4.7.4 Confidentiality</td>
<td>180</td>
</tr>
<tr>
<td>4.7.5 Informed consent</td>
<td>180</td>
</tr>
<tr>
<td>4.7.6 Researcher Relationship with participants</td>
<td>181</td>
</tr>
<tr>
<td>4.8 Data Collection</td>
<td>181</td>
</tr>
<tr>
<td>4.8.1 The interview guide</td>
<td>181</td>
</tr>
<tr>
<td>4.8.2 Amendments</td>
<td>182</td>
</tr>
<tr>
<td>4.9 Data Analysis</td>
<td>183</td>
</tr>
<tr>
<td>4.9.1 Dataset</td>
<td>183</td>
</tr>
<tr>
<td>4.9.2 Analysis</td>
<td>183</td>
</tr>
<tr>
<td>4.10 Trustworthiness</td>
<td>185</td>
</tr>
<tr>
<td>4.11 Chapter Summary</td>
<td>185</td>
</tr>
</tbody>
</table>

Chapter 5: Findings ........................................................................... 187

5.1 Chapter structure ........................................................................... 187
5.2 Participants .................................................................................... 188
5.3 Research Question 1 .......................................................................... 188
5.3.1 ‘Fast-track’ participants ............................................................ 190
Chapter 7: Conclusions .............................................................................................................. 270

7.1 Objectives 1 and 2 .............................................................................................................. 270
7.2 Objective 3 ......................................................................................................................... 271
7.3 Objective 4 ......................................................................................................................... 272
7.4 Objectives 5 and 6 ............................................................................................................. 273
7.5 Objective 7 ......................................................................................................................... 275
7.6 Implications ......................................................................................................................... 277
  7.6.1 Implications for Vocational Rehabilitation ................................................................. 277
  7.6.2 Implications for research ............................................................................................ 279
7.7 Limitations ......................................................................................................................... 282
  7.7.1 Phase 2 limitations ..................................................................................................... 282
  7.7.2 Phase 3 limitations ..................................................................................................... 282
7.8 Strengths and Contribution ............................................................................................... 284
7.9 Summary and Conclusions ................................................................................................. 286

References .................................................................................................................................. 289

Appendices .................................................................................................................................. 319

Appendix 1. ISCOS Publishing Agreement .............................................................................. 319
Appendix 2: List of studies included in the Phase 2 systematic review .................................... 320
Appendix 3: Methods article database ..................................................................................... 329
Appendix 4. Taylor & Francis Publishing Agreement ............................................................... 332
Appendix 5: Occupational bond database ............................................................................... 341
Appendix 6. IOS Press Publishing Agreement ......................................................................... 342
Appendix 7: Empowerment database ...................................................................................... 343
Appendix 8. Flyer ..................................................................................................................... 344
Appendix 9. Participant Information Sheet ................................................................. 345
Appendix 10. Informed Consent Procedure ............................................................... 351
Appendix 11. Interview Guide .................................................................................. 353
List of Tables

Chapter 2  Manuscript 2  Table 1. Literature Profiled By Journal Category And Publication Year…………………………………… 57

Table 2. Measures Of Employment Success Following Spinal Cord Injury…………………………………… 59

Table 3. Employment Outcome Measure Definitions……… 61

Table 4. Methods In The Extracted Literature…………………………………… 64

Table 5. Participant Samples By Injury Level, Gender, Time Since Injury And Ethnicity…………………………………… 65

Chapter 5  Table 1  Participant Characteristics…………………………………… 188

Table 2  Nodes and themes relating to research question one……… 189

Table 3  Themes and nodes relating to research question two………… 209

Table 4  Themes and nodes relating to research question three……… 219

Table 5  Themes and nodes relating to research question four……… 232

Chapter 6  Table 6  Job Functions of RCs Throughout the SOC Model……………. 253
List of Figures

Chapter 1
Figure 1. Study aims and objectives ......................................... 37

Chapter 2  Manuscript 2
Figure 1. PRISMA flowchart for the studies extracted ............... 57

Chapter 3  Manuscript 3
Figure 1. PRISMA flowchart describing the literature search and screening process ........................................ 102

Chapter 3  Manuscript 4
Figure 1. PRISMA diagram describing the literature search and screening process ........................................ 137
## List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2W</td>
<td>Back2Work</td>
</tr>
<tr>
<td>CTP</td>
<td>compulsory third party</td>
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<td>DES</td>
<td>Disability Employment Services</td>
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<td>DSP</td>
<td>Disability Support Pension</td>
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<td>EIVR</td>
<td>early intervention vocational rehabilitation</td>
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<td>IPA</td>
<td>interpretative phenomenological analysis</td>
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<td>MI</td>
<td>motivational interviewing</td>
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<td>NDIS</td>
<td>National Disability Insurance Scheme</td>
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<td>RC</td>
<td>rehabilitation counsellor</td>
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<td>RRTW</td>
<td>Readiness to Return to Work Scale</td>
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<td>RTW</td>
<td>returning to work</td>
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<td>SCI</td>
<td>spinal cord injury</td>
</tr>
<tr>
<td>SOC</td>
<td>stages of change</td>
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<tr>
<td>TTM</td>
<td>transtheoretical model</td>
</tr>
<tr>
<td>VR</td>
<td>vocational rehabilitation</td>
</tr>
</tbody>
</table>
List of Articles Included in the Thesis

Chapter 1


Chapter 2


Chapter 3


Chapter 3

Chapter 1: Introduction and Background

_Happiness transcends the ups and downs of day-to-day life in the marketplace and is built upon the story of a life; a narrative made up not only of family and friendship but also of our contribution to the world. Whether our labour is paid or voluntary, that contribution is generally accomplished in and through our work. What, then, of those who cannot work or, at least, tend not to? (Clifton, 2014, p. 377)_

The spinal cord injury (SCI) research field is necessarily broad and multidisciplinary given the impact of such injuries on every facet of a person’s life. While traditional rehabilitation has primarily focused on physical rehabilitation and psychosocial adjustment, recent decades have witnessed an increase in the recognition of work as an important part of life post-SCI. This recognition has spurred the rapid development of the research field about work after SCI, coalescing into the development of interventions targeted at improving employment rates post-SCI. One such intervention is the early intervention vocational rehabilitation (EIVR) approach first developed in New Zealand by Kaleidoscope (New Zealand Spinal Trust, 2020). Australian research has subsequently adapted the Kaleidoscope model for implementation in inpatient SCI rehabilitation units (Hilton, Unsworth, Murphy, Browne & Olver, 2017; Middleton et al., 2015). The current study explores the participant perspective of one such early intervention service.

Chapter 1 introduces vocational rehabilitation (VR) for people with spinal cord injuries, highlighting the need for the development of new approaches to VR for this population to address persistently low employment outcomes. It begins with a description of typical VR arrangements for people with SCI before discussing novel early intervention approaches and the contribution of this thesis to the field. The chapter finishes with an outline of the structure and organisation of the thesis.
1.1 Spinal cord injury

1.1.1 What is spinal cord injury?

SCI is a neurological injury involving damage to the spinal cord, resulting from traumatic events like motor vehicle accidents, or medical conditions such as stroke or tumours (World Health Organisation [WHO], 2013). SCI has the potential to affect all aspects of a person’s physical functioning, and the extent of these effects coincides with the level of injury on the spinal cord, such that a higher level injury is associated with less physical functioning. For example, a person with a lower level injury in the lumbar spine may be able to walk, but a person with an injury in the thoracic vertebrae may not, although they may have control of their hands and arms (paraplegia) (WHO, 2013). A person with an injury to their cervical spine may have control of their neck and shoulders (quadriplegia), or may need ventilator assistance to breathe (WHO, 2013). Functioning is also affected by injury completeness, or the extent to which the spinal cord is severed, such that incomplete injuries are associated with more functioning and sensation than complete injuries (WHO, 2013). In Australia, 350-400 new SCI cases are recorded each year, or an incidence of approximately 12.8 cases per million population (Tovell, 2020).

Although differences in level and completeness mean that people are affected in highly individualised ways, common physical sequelae of SCI include loss of motor function and sensation below the level of the injury, impairment of respiratory function, loss of bladder and bowel function, loss of sexual function, neuropathic pain, and muscle spasms (WHO, 2013). The complex effects of the injury mean that spinal cord injuries are associated with lengthy hospital stays, ranging from six months for complete paraplegia to nine months for complete quadriplegia, when including both acute medical care and inpatient rehabilitation (Tovell, 2020). The length of an individual’s hospital stay depends on a variety of factors, chiefly injury level and completeness (Tooth et al., 2003).
The functional impacts of SCI mean that people with SCI are likely to experience diminished independence in one or more activities of daily living (ADLs), including ambulating, feeding, dressing, personal hygiene, driving, shopping, and house cleaning (Maynard et al., 1997; WHO, 2013). To mitigate interference in these areas, people with SCI utilise a range of assistive technologies, including manual or powered wheelchairs, walkers, crutches, modified vehicles, home modifications, modified tools and cooking implements, and the use of communication technologies such as voice transcription software (Hedrick et al., 2006). To be effective, these strategies are reliant on accessible environments, and can therefore be an imperfect solution. Beyond the immediate effects of SCI, there are also a variety of secondary health issues, including pain, pressure ulcers, fatigue, spasticity, urinary tract infections, respiratory infections, sleep disorders, and heart disease (Krause & Saunders, 2011; Jensen et al., 2013). These, combined with the effects mentioned above, can diminish a person’s ability to live and work independently.

1.1.2 Employment after SCI

1.1.2.1 Effect of SCI on employment

The impact of spinal cord injuries on the person is significant and affects every life domain, including work. SCI affects a person’s working life in a variety of ways. Return to work (RTW) may be hampered by changes to physical capacity that prevent the person from fulfilling the role, or prolonged recovery periods that prevent the employer from holding the position open. If the person returns to work, they may have fewer hours in the day available for working, given that the effects of the injury prolong the time taken for activities of daily living (Hills & Cullen, 2007). Pain, fatigue and secondary health conditions could also interfere, resulting in withdrawal from employment gained post-SCI (Meade, Forchheimer, Krause & Charlifue, 2011). Accessibility issues can affect a person’s mobility within the workplace, or their ability to travel to and from work (Rowell & Connelly, 2008). Modified
work roles can be less satisfying (Hay-Smith, Dickson, Nunnerley & Sinnott, 2013) or less in keeping with the person’s long-term career goals. Finally, prejudicial attitudes may limit opportunities for gaining work post-SCI, or for advancing the career in the long term (Anderson, Dumont, Azzaria, Le Bourdais & Noreau, 2007). Consequently, the person’s career can be disrupted in both the short and long term, with lengthy rehabilitation periods causing prolonged absences from the workplace and permanently altered physical functioning, often necessitating a change in job. It is estimated that people with SCI return to the workplace at a rate of approximately 35 per cent, with fewer returning to full-time work (Bloom, Dorsett & McLennan, 2019; Young & Murphy, 2019). Those who return to work take an average of three to five years after the injury to do so (Krause, Terza, Saunders & Dismuke, 2010) and report working fewer hours than they did pre-injury (Hills & Cullen, 2007).

1.1.2.2 Financial consequences

Diminished employment rates have serious implications for the financial wellbeing of people with SCI. The combination of a young average age of onset and improved treatments that have extended longevity has resulted in a large financial burden over time (Victorian Neurotrauma Initiative, 2009). This burden has been conceptualised as a combination of an ‘earnings handicap’ and a ‘conversion handicap’ (Sen, 2004, as cited in Connelly, 2008). After sustaining an SCI, a person’s income may sharply decline due to limited capacity or opportunity to participate in the workforce (Rowell & Connelly, 2008). Social welfare systems provide some support, but often do not compensate for the shortfall – in the Australian context, the Disability Support Pension (DSP) pays $944.30 per fortnight (Services Australia, 2020), compared to the average earnings of $3318 per fortnight for the average non-disabled person working full time (ABS, 2020). This earnings handicap may persist throughout the person’s life, given their persistently low employment rates.
The ‘conversion handicap’ refers to the notion that people with disabilities have more difficulty converting their income into a “good living” (Sen, 2004, as cited in Connelly, 2008). This difficulty may arise from increased medical costs (Rowell & Connelly, 2008), increased burden on informal carers (usually partners) that diminishes carers’ capacity for work and therefore family income, diminished physical capacity to engage in desired activities, and the lack of accessibility of those activities. Over a person’s lifetime, these combined earnings and conversion handicaps may result in reduced quality of life and represent an increased financial burden that employment may partially mitigate.

The ongoing financial and productivity loss resulting from SCI affects both the individual and the economy of the country in which they live. The estimated total cost of SCI in Australia is approximately $2 billion annually (Victorian Neurotrauma Initiative, 2009), approximately half of which is borne by the government. The Productivity Commission (2011) estimated that increasing the employment of people with disabilities to match other OECD countries would have a substantial impact on the economy, such that Gross Domestic Product (GDP) would increase. Increasing the employment rate for this population would potentially diminish reliance on the DSP or see a transfer to partial DSP payments, reducing the economic burden on society (Productivity Commission, 2011). Likewise, the increased consumption of consumer goods and services that arises from a higher income would also contribute to the economy both locally and nationally (Deloitte, 2011).

1.1.2.3 Employment and wellbeing

Beyond the financial aspect, diminished employment outcomes can have a substantial effect on the person’s physical and psychosocial wellbeing. Unemployment is associated with diminished mental health both in the general population (Murphy & Athanasou, 1999; Paul & Moser, 2009) and for people with SCI (Chapin & Holbert, 2010). Various theories of unemployment suggest that this is potentially due to diminished self-efficacy (Goldsmith et al.,
1996), loss or change of social status (Ezzy, 1993), restricted agency (Fryer, 1986), and/or deprivation of the non-material benefits of working, like socialisation and participation in a collective purpose (Jahoda, 1981). These effects of unemployment are evident for people with SCI, with unemployment being associated with diminished life satisfaction (Putzke et al., 2002) increased risk of mortality (Krause, Saunders & Acuna, 2012) and diminished quality of life (Yasuda et al., 2002).

Conversely, the benefits of employment to a person’s physical, psychological and financial health are numerous. Research shows that employment post-SCI confers many benefits, including the freedoms associated with financial remuneration, social status and recognition through promotions, and social participation (Meade et al., 2015). Employment also contributes to improved community integration (Anderson et al., 2003) and psychological adjustment (Craig et al., 2015) following SCI. Additionally employment is also associated with improved physical health after SCI, with employed participants reporting fewer comorbidities (Goetz et al., 2018), and a decreased risk of mortality post-SCI (Krause, Saunders & Acuna, 2012). Furthermore, the increased economic participation of people with disabilities contributes to diverse businesses and communities, improving their accessibility and inclusiveness (Henry et al., 2014).

1.2 Rehabilitation

1.2.1 Overview

Rehabilitation aims to enhance and restore functional ability and quality of life to people with physical impairments or disabilities (Meyer et al., 2011). Influenced by legislation, global conflict and civil rights movements, the discipline has shifted in the past 100 years from an illness-oriented, problem-focused endeavour to a wellness-oriented, solution-focused approach (Tarvydas, Addy & Fleming, 2010). Throughout this shift in perspective, the underpinning philosophy of rehabilitation has continued to value the dignity and worth of all
people, and the maximum independence and inclusion of people with disabilities within society (Riggar & Maki, 2004). Contemporary rehabilitation philosophy emphasises an individualised, holistic perspective in achieving its main goals; empowerment, independence and enhanced quality of life, alongside a modern emphasis on self-direction and consumer choice (Kosciulek, 2004; Tarvydas et al., 2010).

1.2.2 Philosophy and values

Rehabilitation overlaps philosophically with psychology, particularly the social and positive psychology philosophies. The influence of social psychology is clear in the impact of Lewin’s work, which proposed that behaviour can be explained as the interaction between a person and their environment \((B = f [P \times E];\) Lewin, as cited in Bogart & Dunn, 2019; Trieschmann, 1988). This idea was extended into rehabilitation largely in the works of Beatrice Wright (1959), who asserted that consideration for context and the accessibility of environments should underpin rehabilitation. This notion corresponds with the social model of disability, popularised in the disability rights movement of the late-twentieth century, which proposes that inaccessible environments and social prejudices are the true source of disability rather than the impairment itself (Oliver, 1996; Oliver & Sapey, 2006).

The influence of positive psychology on rehabilitation is more complex, given that many of the overlapping concepts existed within rehabilitation prior to the advent of positive psychology (McCarthy, 2014). Positive psychology developed in reaction to illness-oriented approaches characteristic of psychology and the broader medical paradigm. It shifted from traditional treatment and cure approaches to emphasise strengths and what works for the individual (Chou, Chan, Chan, et al., 2013; Chou, Chan, Phillips, & Chan, 2013). Concepts such as hope, resilience, coping and subjective wellbeing are applied to produce strong working alliances and promote wellness (rather than curing illness) (Chou, Chan, Phillips, et al., 2013). These ideals have been ingrained in rehabilitation since its inception, and widely discussed
since the mid-twentieth century (McCarthy, 2014), particularly the emphasis on health and functioning, as opposed to disease and dysfunction, and the importance of ecological assessment (Chou, Chan, Chan, et al., 2013; McCarthy, 2014). The specific concepts of humanism, empowerment, wellness, resilience, coping, personal strengths and environmental resources were all features of rehabilitation prior to the advent of positive psychology (McCarthy, 2014). These concepts have become more entrenched in state-funded rehabilitation contexts in the twentieth century, probably due to the increased popularity of positive psychology.

The influences of positive psychology and the disability rights movement have intermingled with the medical paradigm to produce the modern biopsychosocial approach, which captures a person’s health situation through biological, social and psychological lenses (World Health Organisation, 2001). Health and functioning are viewed as associated with the physical impairment, the context and individual factors (Stucki et al., 2002). This has been extended into SCI rehabilitation, which requires such a multifaceted approach due to the scope of the impact of such injuries (Trieschmann, 1988).

1.2.3 Vocational Rehabilitation

Although there is debate over the precise definition of VR, it is commonly conceptualised as a rehabilitation strategy aimed at maximising work participation for people with illnesses, injuries or disabilities (Escorpizo et al., 2011). VR is a multidisciplinary practice that involves the assessment of the person, context and labour market to identify barriers to RTW and to develop strategies to mitigate these (Escorpizo et al., 2011). Briefly, strategies may include providing assistive technology, developing worksite adjustments and job accommodations, counselling, retraining, and developing job seeking skills and work skills like time management and work routines (Waddell, Burton & Kendall, 2008). These strategies strive to assist the client to both gain and retain meaningful employment.
1.2.4 Vocational Rehabilitation after Spinal Cord Injury

In Australia, VR services available to the injured person depend on the circumstances of their injury; those injured in car accidents are covered by compulsory third-party (CTP) insurance whereas those injured at work are covered by worker’s compensation (Mpofu, Craig, Millington, Murphy & Dorstyn, 2015). Those not covered by either of these schemes can access Commonwealth-funded VR services through Disability Employment Services (DES), provided by the Australian Department of Social Services (Mpofu et al., 2015). These funding streams provide job seeking and return to work services via referral to a network of private rehabilitation providers contracted with the government (Buys, Matthews & Randall, 2015). These services are complemented by a series of funds and subsidy schemes that consumers may access to support their employment, depending on their meeting eligibility criteria (Buys, Matthews & Randall, 2015). Work-related supports (not vocational rehabilitation itself) may also be accessed through the National Disability Insurance Scheme (NDIS), though inconsistent service delivery and administrative issues challenge participants seeking these supports (Warr et al., 2017). For people with SCI, these services are generally accessed after the initial hospital-based rehabilitation period has been completed and the person has achieved a level of functional independence and transitioned to community living – often months to years post-injury.

1.2.5 What is Early Intervention Vocational Rehabilitation?

The following narrative review article presents the argument for EIVR, exploring and summarising the employment situation of people with SCI and discussing the potential for early intervention to enhance employment rates for this population. The article also discusses other factors potentially relevant to the success of EIVR. Briefly, the review entailed search and synthesis of the literature about employment after SCI published between 2004 and 2015, a timeframe chosen to capture the previous decade of research at the time of the review. The
search yielded 61 articles for narrative synthesis, after exclusion criteria were applied. The aims, methods, and results of the review article are presented in full below.
Statement of Contribution to Co-Authored Published Paper Included in Chapter 1

Integrated Services and Early Intervention in the VR of People with Spinal Cord Injuries

This chapter includes a co-authored paper. This narrative review was published on 2 February 2017 in the electronic journal *Spinal Cord Series and Cases*. The authors of this paper are Julia Bloom, Pat Dorsett and Vanette McLennan. The authors’ pre-print is included, in alignment with the publisher’s copyright guidelines (Appendix 1).

The contribution of the thesis author to this paper involved: conducting database searches, extracting papers for review, reviewing and analysing the literature, preparing the manuscript draft, responding to feedback from co-authors, overseeing the submission process, responding to reviewer feedback and corresponding with journal editors.

Julia M. Bloom (thesis author) Date: 20/12/2019

Pat Dorsett (primary supervisor) Date: 24/12/2019

Vanette McLennan (co-primary supervisor) Date: 24/12/2019
1.3 Integrated Services and Early Intervention in the VR of People with Spinal Cord Injuries

Abstract

Design: Narrative review.

Objectives: To investigate the potential for early vocational rehabilitation (VR) interventions for people with spinal cord injury (SCI) in overcoming barriers in returning to work, and to pinpoint factors contributing to effectiveness in early VR intervention for this population.

Setting: Queensland, Australia

Methods: Synthesis of the findings of a literature search of online databases ProQuest and CINAHL, using keywords relating to the employment situation and vocational rehabilitation of people with SCI. Themes were identified and analysed in accordance with the research objectives.

Results: Despite increasing government commitment to the workforce and social participation of people with disabilities, Australians living with SCI have significantly diminished employment outcomes compared to the general population. Current VR approaches usually do not commence until some months post-discharge, potentially missing a window of opportunity to preserve pre-existing employment or assist in vocational decision making. The review found that there are opportunities for enhancing VR service provision following SCI, namely integrating the VR program within the primary rehabilitation team thus facilitating early VR intervention.

Conclusions: Emerging evidence shows promising results for early intervention in VR, however questions remain regarding ideal intervention approaches, and it is clear that further empirical investigation is required to support the use of early intervention models post SCI.


**Introduction**

The benefits of employment to a person’s physical, psychological and financial health are numerous and well-documented. Employment is associated with increased social integration, better physical and mental health, and an improved quality of life (1, 2). Subsequently, worker disability and absence from the workforce is associated with significantly diminished economic, health-related and psychosocial wellbeing (3). This raises concerns regarding the employment of people with disabilities in Australia, who have a significantly lower employment rate than people without disabilities (4). In fact, the OECD (2010) has rated Australia as having the 21st lowest employment rate of people with disabilities out of 29 countries ranked.

Of particular interest to this review is the employment situation of people who have sustained a catastrophic injury, including spinal cord injury (SCI). Catastrophic injuries are generally defined as severe injuries to the spine, brain or surrounding skeletal structures. When not immediately fatal, these injuries often result in permanent impairment to a person’s physical and cognitive functioning (5). These injuries have an immense impact on all areas of person’s life, including the occupational domain. Lengthy absences from the workforce, the increased logistical complexity of working, potential discrimination, and the need for physical and psychosocial support all represent potential barriers to returning to work following SCI.

Emerging evidence suggests that vocational rehabilitation services occurring early within the primary rehabilitation process could work to overcome these barriers (6). Conventional rehabilitation approaches generally hold that vocational intervention is inappropriate in the primary rehabilitation phase due to the significant physical and psychological adjustments the person must undertake. Thus vocational intervention is typically delivered post-discharge through referral to disability services or via insurer funded private
rehabilitation providers. Early intervention therefore refers to vocational services which commence pre-discharge, or during the primary/hospital rehabilitation phase.

This literature review will briefly explore the employment situation of people with SCI and the potential for an early intervention approach to overcome the barriers associated with return to work and thus the potential to enhance employment outcomes for this population.

Methods

The search strategy used included searching the online databases ProQuest and CINAHL, using the keywords “employment”, “return to work”, “vocational rehabilitation”, “occupational rehabilitation” in combination with “spinal cord injury” published between January 2004 and August 2015. Searching of citation lists and manual searching of relevant journals generated additional references. The search continued in an iterative manner, refining keywords and re-engaging with the literature until saturation was reached. Studies were selected for review if they specifically related to traumatic SCI sustained in adulthood, included employment or return to work as an outcome variable, or investigated early VR intervention programs.

The search yielded 61 references. References were excluded on the basis of age and direct relevance to topic. Those included were grouped according to the following themes related to the research objectives; SCI and employment, SCI and early intervention VR, and current early VR approaches. These themes were further developed and analysed in order to satisfy the research objectives.

Spinal Cord Injury and Employment

As technology has improved the life expectancy of people with SCI has steadily increased and with it the push for effective vocational services to maximise economic and community engagement of this population. Despite this, employment outcomes remain diminished. Rate of attainment of employment has traditionally been used as the primary
outcome measure of both RTW programs post-SCI research investigating this area (7-10). Employment rate differs broadly between countries due to different cultural, economic and legislative environments, with estimates ranging between 15-60% (5). Recent literature regarding Australian employment rates for people who have sustained a SCI estimates median RTW rates between 21-35%, compared to a general workforce participation rate of 65% (11-13).

Time to return to work following a SCI is lengthy; people often lose their jobs post SCI onset because they are away from work for significant periods of time while undertaking medical and physical rehabilitation and are often advised that they need time to adjust to their injury before considering returning to work (14-16). It can take years for a person to obtain new employment following a SCI, with the interval between onset of SCI and paid employment being approximately four or five years (6, 17, 18).

**The Benefits of Work**

Although it is accepted that working is generally beneficial for most people, evidence suggests that it is particularly beneficial for people with SCI. For example, Chapin and Holbert (19) found that employed post-SCI participants reported more positive feelings, greater life satisfaction and a higher subjective quality of life (QOL) than their unemployed counterparts. Furthermore, engaging in paid work is a way of remaining productive and therefore reinforcing self-efficacy and self-esteem (20). There is also evidence to suggest that working post-SCI is associated with a longer, healthier life (21). This underscores the potentially damaging effects of allowing this population to ‘slip through the cracks’ of current VR service delivery models and highlights an opportunity for improving such services through the introduction of an early intervention component.

**Early intervention**
The primary rehabilitation models for people with SCI usually do not incorporate serious consideration for vocational options or long term vocational goals, instead prioritising functional independence and social re-integration (22). This is despite the fact that work is viewed by people with SCI as being a central part of returning to a normal life (14, 23). Conventional wisdom generally holds that vocational considerations are inappropriate in the primary rehabilitation phase due to the significant physical and psychosocial adjustment process person must undertake.

Emerging research suggests, however, that this reasoning may be flawed; a United Kingdom study regarding RTW post-SCI found that half of participants reported feeling ready to discuss employment during their initial hospital admission (16). Similarly, a Swedish study of young adults aged 20-34 who had sustained a SCI indicated that this population perceived themselves as ready to and capable of work, but required guidance in making vocational decisions and support in sourcing appropriate work experience or training (7).

Those who do return to work early tend to return to their previous employer (16) and supportive employers have been recognised as promoting employment in this population (24). Early vocational intervention could preserve this relationship and maximise employer support through liaison with the employer and use of appropriate workplace supports. This is the most common pathway back into the workforce for those who achieve an earlier return (22). Cross-sectional research in the United States echoes these findings, with returning to the previous employer identified as a “fast track” to RTW following a SCI (6). Furthermore, Krause et al (6) suggest that there is a limited time span in which to achieve this through capitalising on pre-injury skills and maintaining the occupational bond. These findings highlight an international service delivery gap and reframe the question of early intervention from “how early is too early?” to “how late is too late?”.

**Early Intervention in Other Populations**
Studies with other catastrophic injury populations such as Traumatic Brain Injury (TBI) have suggested that the latency at which vocational rehabilitation services are offered is an important factor in determining the long-term employment outcomes; with earlier service delivery being associated with improved vocational outcomes (25). For example, earlier placement in supported employment predicted a higher likelihood of RTW for people who have sustained a TBI (26). Additionally, an integrated primary and vocational rehabilitation model, with early intervention as key feature, reported success in the rehabilitation of people with moderate to severe brain injuries with the authors concluding that early VR intervention appears to enhance employment outcomes through return to the previous employer (27). Taken together, these studies provide further evidence for the potential effectiveness of early intervention in enhancing the employment outcomes of people who have sustained a catastrophic injury including spinal cord injury.

**Early Intervention in Practice**

Recent endeavours to address the question of early intervention in catastrophic injuries include the Lifetime Care and Support Authority’s (LTCSA) ‘In-Voc Pilot Program’ in which patients who had sustained a SCI within the previous six months were offered vocational rehabilitation services in addition to their primary rehabilitation program (11). Early results were promising, with 34.5% of participants engaging in paid employment at a median of three weeks post-discharge, a rate which can be expected to increase over time (22).

Similar results have been found in New Zealand’s Kaleidoscope Vocational Program upon which the In-Voc Program was based (11). Implemented as part of a two-pronged approach to lifting the employment rate of people with SCI, the Kaleidoscope program incorporates commencing vocational intervention within one week of admission to the subacute rehabilitation facility. The Kaleidoscope program has had significant success with post-SCI employment rates of 41%, compared to an overall post-SCI employment rate of 13%.
prior to the implementation of the program (28). Proponents of the program indicate that early intervention is a main factor of the program’s success (28).

The two programs share many similarities, including their underpinning philosophies, approach to rehabilitation, and similar employment outcomes. Differences in timing of intervention could be attributed to systemic differences which influence the stage at which primary rehabilitation services commence; more integrated systems such as those in New Zealand may commence initial rehabilitation at the acute stage, whereas the more fragmented New South Wales system delays rehabilitation until subacute admission. This begs the question of whether intervention is ‘the earlier the better’, or whether there is a point in time where intervention is maximally effective.

**Benefits of Early Intervention**

Beyond enhancing employment outcomes, early vocational intervention may enhance broader rehabilitation outcomes through inspiring hope and enhancing motivation. For example, early consideration of vocational goals during the rehabilitation process communicates to clients that returning to work is not only possible, but likely (22). Evidence suggests that identifying RTW as a treatment goal enhances hope and motivation and in turn reinforces treatment adherence (14). Motivation is a strong predictor of VR employment outcomes generally, and evidence suggests that this is also the case within those with people who have sustained a SCI (14). Higher self-reported levels of motivation are associated with a greater likelihood of having ever worked following a SCI (29). Hope also enhances coping and psychosocial adjustment (30). This was observed in NSW In-Voc program of which early intervention was a feature: participants retained stable quality of life scores during a time when it would be expected to decrease (11).

Early intervention may also assist in preventing the long-term financial disadvantage often associated with SCI. These injuries have accompanying medical and assistive technology
costs which are often not met by medical or welfare systems and this is exacerbated by long-
term unemployment (31). Physical impairment combined with economic hardship may create
a ‘double disadvantage’ in that this group are physically and socioeconomically handicapped
by their injury. A shorter latency between the injury and employment appears to have a
protective effect against this financial disadvantage and improves job retention over time,
potentially enhancing lifelong financial health (6, 32). This shorter latency could potentially be
achieved through early vocational intervention.

**Challenges in Early Intervention**

Although early intervention and integration of services within the primary rehabilitation
program appears to have many positive effects, the willingness of participants to engage in
such a program soon after their injury is variable. Qualitative research reveals varying levels
of motivation, with some participants unwilling to approach topic of returning to work during
a time of tremendous physical, psychological and interpersonal upheaval (16, 33). This is
congruent with the predominant thinking surrounding returning to work post-SCI and has
important implications for any model attempting to incorporate an early intervention approach,
which must consider appropriate timing and assertiveness of intervention. Current early
intervention approaches incorporate Motivational Interviewing in order to assess and work
within the client’s motivational state and potentially overcome this barrier (22). The attitudes
and motivations of treating clinicians are just as vital as those of the clients to the success of
early vocational intervention. Many clinicians may subscribe to traditional thought regarding
SCI rehabilitation and may reject vocational intervention at such an early stage. One strategy
to overcome this is integration of the VR professional within the primary rehabilitation team.
This may foster cultural change within the team and significantly enhance client access to VR
services (34).

**Methodological Considerations**
Rehabilitation success post-SCI can be assessed in a multitude of ways, including employment rate, income, and time taken to return to work (6, 18, 35). However, comparison of these measures is difficult due to pervasive methodological, sampling, and definitional differences throughout the literature. Specific early intervention studies tend to utilise employment rate as the primary outcome measure due to its establishment as the ‘gold standard’ measure of rehabilitation success. However, static point in time measures may under- or overestimate the actual long-term outcome of the study in question. In addition, employment rate is somewhat reductionist; it provides no information regarding long-term career outcomes following SCI, job retention rates post-SCI, or how happy people are in their work post-SCI.

A broader scope of outcome measures, including employment trajectories and job satisfaction, would assist in completing the picture of post-SCI employment research (21, 22). Data on job retention rates following SCI is relatively scarce as relatively little is known about workers’ long-term career trajectories subsequent to their injuries (36). Evidence suggests that workers have difficulty sustaining long-term employment following their injury (36). This is due to a number of factors, including the onset of secondary health conditions, comorbid mental health issues, ageing, or household responsibilities (36, 37). Further research investigating the long-term career pathways of this population could identify the points at which support may be required, providing targets for intervention and thus enhancing lifespan career development.

Related to job retention is job satisfaction. Young and Murphy (38) identified job satisfaction as a potential indicator of VR program success, as well as highlighting its utility in resource allocation. Researchers suggested that unemployed participants dissatisfied with their vocational status were generally not performing highly active job searches and thus could be better supported through VR intervention to facilitate employment attainment. Young and Murphy also recommended that employed participants who are dissatisfied with their vocational situation could benefit from additional support to prevent withdrawal from the
labour market. This indicates that job satisfaction has potential to inform future VR programs and interventions.

Further to these findings, research indicates that some participants may accept work out of ‘economic desperation’, not necessarily employment which fully utilises a person’s knowledge and skills (39). The resulting diminished job satisfaction could inflate employment lapse rates as consumers are disheartened by being physically unable to perform their preferred tasks. Hay-Smith and Dickson (23) briefly touched on this issue with their phenomenological study into the meaning of work post-SCI. One participant of this study alluded to this issue and stated that they had rejected a concrete job offer because it was a “dumbed down” application of their skills (p.1441). Being given ‘token’ work which requires little training or skill is an issue emphasised by people in this population who report feeling insulted and belittled as a result of being assigned such tasks (23). Thus it appears that job satisfaction, or perceived potential for satisfaction, plays a possibly mediating role in enhancing rehabilitation outcomes and facilitating employment post-SCI and so should be investigated empirically.

**Implications**

The aim of this review was to explore the potential for early intervention to enhance the vocational rehabilitation of people with SCI and to identify factors relating to the success of such programs. People with this injury have specialised needs which are perhaps not being met by vocational rehabilitation services, highlighting a service gap between primary and vocational rehabilitation services.

The identification of the “fast track” to return to work, and subsequent emerging support of this pathway represents an opportunity for rehabilitation counsellors. Liaison with the previous employer has traditionally not been undertaken during primary rehabilitation as this is beyond the scope of practice of the professionals involved. Contact with the previous employer would involve providing information regarding the injury and the likely resulting
physical impairment, information regarding available workplace supports or incentives available to the employer, and a discussion about the availability of suitable work tasks for the employee. This highlights an opportunity for the involvement of vocational specialists, such as rehabilitation counsellors, whose niche skill set is typically underutilised within the primary rehabilitation context and whose professional management of this sensitive task could preserve jobs that would otherwise be lost.

Long-term career development considerations should be taken into account when developing enhanced vocational services models for people following a SCI, as this population demonstrates reduced income, higher underemployment and earlier retirement than average (37, 40). Existing VR services are generally insurer-driven, and usually terminate soon after employment is obtained with limited consideration of the person’s ongoing career development.

Finally, an enhanced model of VR service provision following a SCI could be transferable to the broader catastrophic injury population. Spinal cord injury may be accompanied by comorbid mental or cognitive health problems and people with these problems have been excluded from emerging models (22). This raises questions of inclusion. There is evidence to support early vocational intervention in people with a TBI, suggesting that early and integrated services could support employment outcomes for a wide range of people (25).

**Conclusion**

Clearly there is emerging evidence for the potential of early intervention in the VR of people following SCI, and this warrants further investigation. Questions still remain, however, regarding the best timing of vocational intervention following a SCI and whether there is a need for continuing support from a long-term, career development perspective.

Future research should consider longitudinal investigation of career trajectories of people following SCI in order to form a comprehensive picture of this group’s long-term
employment situation and identify areas where support is necessary to preserve the initial success of early intervention VR programs. Additionally, more holistic outcome measures, including job satisfaction and job retention, could potentially inform as to the quality of return to work success.
References


1.4 Follow-up to narrative review: EIVR processes

Since the narrative review article above (published in 2017), the literature base supporting EIVR has expanded with more information about the specific processes of EIVR programs. The specific tasks of EIVR broadly parallel those of typical VR service delivery, insofar as they include initial engagement, vocational assessment, vocational counselling, goal setting, planning, job placement, and post-placement support (Hilton et al., 2017; Johnston et al., 2020). The emphasis on the preservation of pre-injury employment enhances the focus on liaison, negotiation and education of the pre-injury employer. In terms of their overall frameworks, EIVR programs are predicated on person-environment fit models of VR (e.g.: the NSW In-Voc program is based on the Theory of Work Adjustment; Middleton et al., 2015). This means that worksite assessment and job task analysis play a key role in alignment with this populations’ characteristically extensive use of assistive technology (Hilton et al., 2017; Middleton et al., 2015). Although the specific processes that best promote participants’ vocational successes are still yet to be established, it is clear that the specific tasks of EIVR service delivery have been shaped by both its key goals and the characteristics of its clientele.

The findings of the review highlighted diminished employment outcomes post-SCI, despite the benefits of working for this population and the increased commitment of the Australian federal government in supporting people with disabilities. The narrative review also emphasised the vocational potential of this population, linking to literature underscoring consumers’ early readiness to engage in VR services and highlighting the successes of existing EIVR services in Australia and New Zealand. Undermining these conclusions was the pervasive heterogeneity of the methods and measures used within the research. These aspects particularly affected the measurement of employment, making it difficult to tell what constitutes a successful employment outcome for a person with SCI.
In addition to supporting the vocational potential of people with newly-acquired SCI and arguing for the implementation of EIVR to address service gaps, the narrative review article highlighted additional factors relevant to EIVR. It was clear from researching and writing the narrative review that there are underlying factors of EIVR that could potentially account for its success for this population, regardless of the specific VR processes employed. These include the notions of promoting psychological resources like hope and empowerment, and preserving pre-existing occupational bonds. There is a need to conceptualise and better understand the underpinning mechanisms of EIVR practice. Given that Australia has a complicated compensation system, with inconsistent access to VR services between jurisdictions, examining and clarifying the factors that promote EIVR success could work to strengthen EIVR programs in terms of their underlying mechanisms. Identifying these common factors of EIVR could support a robust theoretical foundation for EIVR, and inform the development of future programs.

1.5 Study Aims and objectives

Evidence highlights a persistently low employment rate after SCI, despite the benefits of working for this population and the increased commitment of the Australian federal government in supporting people with disabilities. Literature also emphasises the vocational potential of this population, linking to literature supporting consumers’ early readiness to engage in VR services (Fadyl & MacPherson, 2010) and highlighting the successes of existing EIVR services in Australia and New Zealand (Middleton et al., 2015). EIVR serves a clearly-established service gap and is promising in its potential, but there is a need for additional evidence to support its emergence. There is also a dearth of evidence exploring the experiences of consumers engaging in such programs, or indeed exploring consumers’ vocational needs, attitudes, and barriers in the earlier phases of their recovery. Therefore, the overall aim underpinning this work was:
To explore what the return to work journey is like from the perspective of people with newly-acquired spinal cord injuries, and to describe the influence of EIVR on their journey.

This overall aim was addressed via seven research objectives fulfilled throughout the research project, detailed below. Background research (Section 1.3, above) conducted in pursuit of this overall aim revealed a research field with substantial heterogeneity in terms of the methods, measures, and samples employed. Pervasive differences in the operationalising and reporting of measures potentially undermined conclusions made about this literature, particularly when discussing what makes a successful employment outcome. Additionally, inconsistent reporting challenged the collation of research relating specifically to newly acquired SCI. Therefore, the study’s research objectives pertaining to employment outcomes for people with SCI, were:

1. Explore what makes a “successful employment” outcome after SCI.
2. Investigate the methods and populations used in the literature about employment after SCI to identify research gaps and inform the development of future research.

Several factors were also identified in the narrative review (Section 1.3) that warranted further inquiry as potential mechanisms of successful EIVR, including maintenance of the occupational bond, inspiring hope for eventual RTW, and reinforcing motivation. Given that the development of EIVR is (at least partially) based on the notion that returning to the previous employer provides a “fast track” to RTW after SCI (Krause et al., 2010), maintaining consumers’ relationships with their employers is potentially a key mechanism underpinning the success of EIVR. Prior research has also suggested that EIVR is a hope-inspiring practice (Middleton et al., 2015) and may therefore reinforce motivation (Fadyl & McPherson, 2010) and psychological wellbeing (Johnston et al., 2014). Therefore, the objectives in this research investigating the mechanisms of successful EIVR were:
3. Explore the concept of occupational bonding within EIVR, and identify ways that this bond may be supported when challenged by SCI.

4. Investigate the role of psychological resources such as hope in EIVR, and identify how EIVR works to support these variables.

The emerging evidence for EIVR describes a promising intervention that extends conventional VR practice. The bulk of this evidence is primarily concerned with employment outcomes. Corresponding to the outcomes focus, the experiences and perspectives of consumers of EIVR have attracted less research attention, with only one study to date highlighting the consumer perspective (Ramakrishnan et al., 2016). A deeper understanding of the lived experiences of this population would enable researchers and practitioners to design VR services that are more responsive to the unique barriers experienced by people with recently acquired SCI and support career development in the short and longer term. Describing consumers’ experiences of the earliest stages of their RTW trajectory would inform the refinement of VR programs to better meet the needs of the consumer group as defined by the consumers themselves. Finally, there is also a lack of research about the specific process of EIVR, presenting an opportunity to explore the aspects that participants find most beneficial and identify potential outcomes beyond the employment domain. Therefore, the research objectives relating to the consumer perspective of EIVR are:

5. Explore how consumers who participated in an EIVR program describe their experiences of planning, seeking and/or returning to work.

6. Explore which factors present barriers to job seeking or RTW for people with newly acquired SCI.

7. Investigate the VR processes that consumers perceive as most helpful in EIVR following SCI.
1.6 Thesis structure

The work was conceptualised and undertaken in three phases, and the thesis is therefore organised according to these phases. Phase 1 comprised the background narrative review (Section 1.3), which informed the development of a large, systematic literature review. This systematic review (Phase 2) explored the methods, measures and demographics of the research about employment after SCI, and also appraised the evidence for the mechanisms that underpin EIVR. The Phase 2 systematic review supported the development of the Phase 3 qualitative study, informing the conceptual framework, research questions, study design and analysis. A diagrammatic representation of the thesis structure is presented in Figure 1.

Chapter 1 describes the effects of SCI on employment, highlights the benefits of employment for this population, and how EIVR may work to promote employment for people with newly-acquired SCI. Chapter 1 also includes the background literature, presented in the form of a narrative review article titled ‘Integrated services and early integration in the vocational rehabilitation of people with newly-acquired spinal cord injuries’ (Bloom, Dorsett & McLennan, 2017).

Chapter 2 describes the methods of the systematic literature review, and the results of this review as they pertain to the methods, measures and demographics utilised in the extant literature base. This chapter comprises an introductory section describing the methodology of the systematic review process utilised throughout the study, and presents the findings of the review in the form of a published article titled ‘Investigating employment following spinal cord injury: outcomes, methods, and population demographics’ (Bloom, Dorsett & McLennan, 2019). Aspects of the reviewed published research including definitions of successful employment outcome, the common characteristics of research samples, and methodologies used, are explored and synthesised in this chapter. This review article highlights who is and is not being represented in the published research and supports the development of future
research. Following the article, Chapter 2 then presents an updated account of the literature published since the published review was completed and discusses the impact of the updated literature on the article’s conclusions.

Chapter 3 presents the conceptual frameworks for the mechanisms of EIVR. These were informed by the background review (Section 1.3), which highlighted the potential for EIVR to promote psychosocial variables. These resources were conceptualised under the frameworks of occupational bonding and empowerment. Two published articles are included, titled ‘Occupational bonding after spinal cord injury: a review and narrative synthesis’ (Bloom, McLennan & Dorsett, 2019), and ‘Vocational rehabilitation to empower consumers following newly-acquired spinal cord injury’ (Bloom, Dorsett & McLennan, 2020). These two articles discuss the underpinning mechanisms of EIVR, highlighting the utility of occupational bonding and empowerment frameworks to explain how EIVR promotes both employment outcomes and overall wellbeing after SCI.

Chapter 4 outlines the methodology applied for Phase 3 of the present study, including discussion of the qualitative design used and the practical aspects of the research protocol. The study used a qualitative, longitudinal design to elucidate the consumer perspective of EIVR and explore their vocational journeys after recent SCI.

Chapter 5 presents the qualitative findings of Phase 3 of the study, grouped into themes to address participants’ RTW experiences and attitudes, as well as their perspectives on EIVR.

Chapter 6 discusses the findings in the context of the literature, drawing on a theory of RTW readiness to explain the participants’ RTW journeys presented in the previous chapter. The chapter also includes a discussion of the empowerment and occupational bonding frameworks, describing the empirical support provided by Phase 3 of the current study, with recommendations about the practical utility of these concepts in EIVR practice.
Chapter 7 concludes the thesis with a discussion of the implications of the study for VR practice, research, and policy. This chapter also considers the study in terms of its overall aims and objectives, discusses the strengths and limitations of the thesis, and presents concluding remarks.
Aim: To understand RTW journeys after newly-acquired SCI from the consumer’s perspective, and to explore how EIVR influences those journeys.

**Figure 1. Study aims and objectives**

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<tr>
<th>Phase 1</th>
<th><strong>Background</strong></th>
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<tbody>
<tr>
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<td>• Narrative review article exploring evidence for EIVR after SCI</td>
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<td><em>Chapter 1</em></td>
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<td>• Systematic review about the concept of the occupational bond</td>
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<td><em>Chapter 3</em></td>
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<td>• Systematic review investigating empowerment within EIVR</td>
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<td><em>Chapter 3</em></td>
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<th>Phase 2</th>
<th><strong>Research objectives 1-4</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Longitudinal, qualitative study investigating EIVR from the consumers’ perspective</td>
</tr>
<tr>
<td></td>
<td><em>Chapters 4 and 5</em></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Phase 3</th>
<th><strong>Research objectives 3-7</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Discussion of findings in terms of research aims and objectives</td>
</tr>
<tr>
<td></td>
<td><em>Chapter 6</em></td>
</tr>
<tr>
<td></td>
<td>• Discussion of thesis implications, strengths and limitations</td>
</tr>
<tr>
<td></td>
<td><em>Chapter 7</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Synthesis &amp; conclusions</th>
</tr>
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<tbody>
<tr>
<td>• Discussion of findings in terms of research aims and objectives</td>
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<tr>
<td>• Discussion of thesis implications, strengths and limitations</td>
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1.7 Summary

Novel approaches to VR are being developed in response to persistently low employment rates post-SCI. While emerging research has supported the efficacy of these early intervention programs, there are opportunities to investigate and incorporate consumers’ perspectives into this continuing development. Therefore, the present study aims to capture the participant perspective of EIVR to highlight the most beneficial functions from their point of view. Phase 1 of this project comprised background research addressing this aim, and revealed a methodologically and demographically complex research field, and highlighted potential underpinning mechanisms (or ‘common factors’) of EIVR. Thus, several research objectives were developed to fully address the overall aim of the research. These objectives are addressed via a phased project, comprising a background review (Phase 1, Section 1.3), a systematic literature review (Phase 2, Chapters 2 and 3), and a qualitative study (Phase 3, Chapters 4 and 5). This phased research project enabled the elucidation and analysis of the consumer’s perspective of EIVR to be contextualised within relevant theoretical frameworks, providing both the consumers’ and a theoretical perspective of EIVR.
Chapter 2: The Phase 2 Systematic Review

Phase 1 of the project aimed to investigate the published research about VR after SCI, focusing on early intervention. In the process of addressing this aim, the background review identified that the published literature about employment after SCI is characterised by substantial heterogeneity in terms of employment definition, making it difficult to define what constitutes a successful employment outcome. It also seemed that there was comparatively limited evidence about employment after newly-acquired SCI specifically, potentially overlooking the unique needs of this population. Further, evidence suggested potential mechanisms of EIVR, or common factors that underpin successful EIVR despite the varied compensation environments and practice frameworks influencing its delivery. Therefore, the background review completed in Phase 1 contributed to the development of the following research objectives, which were addressed in subsequent phases of the project. Articulated below are the research objectives associated with Phase 2 of the research:

1. Explore what makes a ‘successful employment’ outcome after SCI.

2. Investigate the methods and populations used in the literature about employment after SCI to identify research gaps and inform the development of future research.

3. Explore the concept of occupational bonding within EIVR, and identify ways that this bond may be supported when challenged by SCI.

4. Investigate the role of psychological resources such as hope in EIVR, and identify how EIVR works to support these variables.

Phase 2 of the research aimed to address these objectives via a broad, systematic literature review, from which three published articles were generated (presented in Chapters 2 and 3). While detailed methods, findings, and conclusions are included within each article, this chapter presents the overall systematic review method, followed by the first systematic review article; an exploration of the methods, measures and population demographics used in the
research literature about employment after SCI. This chapter concludes with an update of research published after the article was published and considers the findings of both the original article and the update in terms of the research objectives.

2.1 Systematic review method

The systematic review method utilised was adapted from Pickering and Byrne’s (2014) Systematic Quantitative Literature Review method, and was selected for this project due to its simplicity, reproducibility, and ability to summarise the methodological and demographic aspects of the research base (Pickering & Byrne, 2014). Unlike other systematic review methods, the chosen method accommodated either quantitative or narrative synthesis, preserving the ‘systematic’ literature search strategy while allowing the researcher flexibility in navigating the research field. This flexibility meant that the method could synthesise interdisciplinary research, which was useful given that vocational rehabilitation is an interdisciplinary endeavour (Shaw & Mascari, 2017). The systematic quantitative method chosen for this project was intended to map the research field and identify gaps. Other methods were deemed less suitable for the current project due to their need for larger research teams (Green & Higgins, 2009), and the large variety of study designs and methods anticipated to be present in the published literature.

The systematic quantitative review method broadly involved the development of selection criteria, the development and refinement of a literature database (via MS Excel) including categories relevant to the research objectives, a thorough search of multiple databases of published literature, screening of the extracted articles, and input of the articles into the Excel database. This database was then used to generate frequency tables across the relevant categories, highlighting topics, methods, or demographics with comparatively more or less research.
2.1.1 Inclusion criteria

The extracted articles were required to meet a variety of conditions to be included in the systematic review. The original inclusion criteria were:

- Employment outcome (employment rate, hours worked, employment satisfaction, time taken to return to work) included as a study variable
- Study must be original research (reviews excluded)
- Study participants between the age of 18 and 65, with traumatic SCI
- Study published between 2006 and 2017 inclusive
- Study must be peer-reviewed and written in the English language

Studies had to include an employment outcome of some description as a study variable in order to assess the consensus of what ‘successful employment’ meant (research objective 1). Reviews were excluded as this is usual practice to avoid duplication in the studies reviewed. Including participants aged between 18 and 65 intended to capture the working population, excluding paediatric SCI. Studies needed to include participants with traumatic SCI or be able to differentiate their data, given that people with non-traumatic SCI tend to have different demographics to people with traumatic SCI (New, Simmonds & Stevermuer, 2011) and therefore potentially different RTW experiences. Studies not written in English and not accessible via the Griffith University library databases were also excluded. Where additional inclusion criteria were used, these are reported within the methods of each published article.

The inclusion criterion relating to study publication date was intended to capture the previous decade of research to ensure the reviews reflected current practice. Rehabilitation, compensation environments, and the labour markets have undergone significant changes since the early 2000s, rendering research published before 2006 potentially less relevant. The continuing impact of globalisation from the 1990s through to the 2010s has brought about the outsourcing of low-skilled jobs to newly-industrialised and developing nations, changing the
availability of certain kinds of work (particularly manufacturing) (Zajda, 2007). The further impact of the Global Financial Crisis (GFC) in 2008 diminished labour participation rates, particularly for men (Kler et al., 2015). Combined with the GFC is the end of the resources boom, said to have peaked in 2012, which has driven increasing fragmentation of jobs and casualization of the workforce (Carney & Stanford, 2018), exemplified in the rise of the ‘gig economy’ (Healy et al., 2017). Taken together, these events have diminished the security of work and increased underemployment rates, particularly for young men in blue collar jobs (Carney & Stanford, 2018), who are most likely to sustain an SCI (Tovell, 2020). Thus the criterion relating to study publication date (2006-2017) was chosen to ensure a contemporary perspective. This criterion was broadened for the occupational bond paper (see Section 3.2) because of the comparatively limited number of studies published that were relevant to the occupational bonding concept. Therefore, the publication year criterion was expanded to include publications from the year 2000 to ensure an adequate basis for discussion of the concept. Updates were made for each published article included in the thesis, to include literature up to October 2019 and discuss the impact (if any) that the update had on the conclusions of the articles.

2.1.2 Search strategy

The initial literature search was carried out in March 2017, and re-run for the update in October 2019. Studies were identified for inclusion primarily via database searching, including the ProQuest Central, CINAHL, Web of Science, Informit, and Google Scholar databases. Additional studies were identified via the reference lists of papers identified in the database search.

Search terms included ‘spinal cord injury’ or ‘spinal injury’ and a combination of the following terms; ‘vocational rehabilitation’, ‘occupational rehabilitation’, ‘employment’,

Further database searching was undertaken for the articles presented in Chapter 3, hereafter referred to as the conceptual reviews, to ensure maximum possible inclusion of relevant studies, and to capture recently published material. These searches were carried out in August 2017 (‘Occupational Bonding after SCI: A Review and Narrative Synthesis’, Section 3.2), and March 2019 (‘Vocational Rehabilitation to Empower Consumers Following Newly Acquired SCI’, Section 3.5). See Chapter 3 (Sections 3.2 and 3.5) for the additional search terms used.

2.1.3 Screening

Articles were initially screened on the basis of the inclusion criteria via reading of abstracts. Articles that fulfilled the inclusion criteria were then read in full to confirm relevance. Extracted studies that were questionable in meeting the criteria were included or rejected by unanimous agreement between the researcher and supervisors.

2.1.4 Quality appraisal

Quality appraisal is recommended as part of any reliable systematic review to assess the methodological quality of the extracted studies to determine if they are of sufficient quality to meet the research aims (Petticrew & Roberts, 2008). The tool chosen for appraisal was the Mixed Methods Appraisal Tool (MMAT). The MMAT was chosen above other quality assessment tools primarily for its capacity to appraise a variety of research designs and its applicability to complex phenomena like employment after SCI (Pluye et al., 2011). The MMAT caters for three methodological domains: mixed-method, qualitative and quantitative designs.
2.1.4.1 Quantitative studies

Using the MMAT, quantitative studies are appraised differently depending on whether they utilise a randomised or non-randomised design. Appraisal questions relate to appropriate randomisation, blinding, appropriate group comparisons, appropriate measures to address the research question, methods used to avoid selection bias, completeness of outcome data, and withdrawal/response rates (Pluye et al., 2011).

2.1.4.2 Qualitative studies

Qualitative studies were appraised according to the process of data collection and analysis, consideration of the context of data collection, and the extent of reflexivity present in the research (Pluye et al., 2011). The MMAT provides guidance with further considerations under each of these subsections. For example, when appraising reflexivity, the MMAT recommends that reviewers “consider whether (a) researchers critically explain how findings relate to their perspective, role, and interactions with participants (how the research process is influenced by or influences the researcher); (b) researcher’s role is influential at all stages (formulation of a research question, data collection, data analysis and interpretation of findings); and (c) researchers explain their reaction to critical events that occurred during the study.” (Pluye et al., 2011, p.3).

2.1.4.3 Mixed-methods studies

The MMAT recommends appraising mixed-methods studies both in terms of their separate design aspects (i.e., appraise the qualitative and quantitative elements separately), and the extent to which the qualitative and quantitative aspects are integrated to answer the research question (Pluye et al., 2011).

2.1.4.4 Scoring and analysis

MMAT scores are calculated as a percentage of the criteria met, such that a study that satisfies three out of 4 criteria is allocated a percentage of 75%. The MMAT guidelines
recommend either using these scores to rank and subsequently weight studies, or using scores to compare and contrast the results of different groups (i.e. the high quality versus the lower quality groups). The latter is in keeping with recommendations that promote assessing and reporting on sources of bias rather than weighting or excluding studies based on subjective judgements made about quality (Viswanathan et al., 2017). Given that the research objectives of the methodological review (Chapter 2) were to describe the research field, and the objectives of the conceptual reviews (Chapter 3) were exploratory in nature, quality scores were not used to weight or exclude studies. Rather, in keeping with the recommendations discussed above, the published reviews reported broadly on sources of bias.

2.1.5 Database categories

2.1.5.1 Article 1: methodological review

Categories for the published review assessing the methods, demographics and measures used within the literature (Chapter 2) related to the author; year of publication; journal title; journal discipline/topic; geographic location including continent and country; research design and methodology; inclusion and exclusion criteria; sample size; age, gender, ethnicity and injury characteristics of the sample; results; limitations; and quality appraisal score.

2.1.5.2 Articles 2 and 3: conceptual frameworks

Separate databases were developed for the conceptual review (Chapter 3). For the occupational bond component (Section 3.2), the database categories included author(s), year of publication, focus of the research (injured person, employer, or co-worker), research design and method, results, and any limitations identified. For the empowerment component (Section 3.5), database categories included author(s), year of publication, research design and method, results, and any limitations identified. In addition, each paper was also classified based on whether internal states or traits, such as optimism or personality factors, were considered in relation to employment outcomes. The psychological constructs related to employment
recorded for each paper included: mental health conditions; resilience; hope; motivation; personality factors; optimism; and ‘other’, which included predictors that did not fit into the other broad categories.

The categories were tested and refined in an iterative process in alignment with the quantitative review methodology (Pickering & Byrne, 2014), such that the first 10% of studies were entered into the database to identify the need for adding or collapsing categories. Categories were amended to reflect terminology and reporting conventions used in the literature. Further specific refinements are reported in the published articles included.

2.1.6 Analysis

The systematic review method chosen recommends tabulating categories to produce summary tables (Pickering & Byrne, 2014). This method was undertaken where appropriate, particularly in the methods article (Chapter 2). For the conceptual reviews, analysis comprised a combination of summing categories (for example, when reporting on research designs) and narrative synthesis, and acceptable method of analysis in this method (Pickering & Byrne, 2014). This approach was taken to reduce duplication in analysis, given that some studies were analysed under multiple categories. For example, the same study might investigate both self-efficacy and motivation, and would be analysed under both categories.

2.1.7 Findings

The findings for the literature review are presented across three peer-reviewed published articles as follows:

‘Investigating Employment Following SCI: Outcomes, Methods and Population Demographics’ (Chapter 2) summarises the methodological aspects of the research field, addressing research objectives 1 and 2.

‘Occupational Bonding After SCI: A Review and Narrative Synthesis’ (Chapter 3) presents the findings of the review as they pertain to the construct of occupational bonding.
‘Vocational Rehabilitation to Empower Consumers Following Newly Acquired Spinal Cord Injury’ (Chapter 3) summarises the research for the psychological resources that underpin empowerment following newly-acquired SCI.

The following published article ‘Investigating Employment Following SCI: Outcomes, Methods and Population Demographics’ presents the specific methods and results of the first component of the Phase 2 literature review. This aspect of the Phase 2 literature review was intended to capture the populations and methods used within the published research about employment after SCI, to firstly identify what is considered a “successful” employment outcome, and secondly to inform the development of the Phase 3 qualitative study component of the thesis. A list of studies included for review in this article is attached as an appendix (Appendix 2), as is an abridged version of the Excel database generated (Appendix 3).
Statement of Contribution to Co-Authored Published Paper Included in Chapter 2

Investigating Employment Following SCI: Outcomes, Methods and Population Demographics

This chapter includes a co-authored paper. This systematic review was published in *Disability and Rehabilitation*, first online in May 2018, and then fully published in January 2019. The authors of this paper are Julia Bloom, Pat Dorsett and Vanette McLennan. The authors’ pre-print is included, in alignment with the publisher’s copyright guidelines (Appendix 4).

The contribution of the thesis author to this paper involved: developing search terms and conducting database searches, extracting papers for review, screening papers in accordance with inclusion/exclusion criteria, reviewing and analysing the literature, preparing the manuscript draft, responding to feedback from co-authors, overseeing the submission process, responding to reviewer feedback and corresponding with journal editors.

Julia M. Bloom (thesis author) Date: 20/12/2019

Pat Dorsett (primary supervisor) Date: 24/12/2019

Vanette McLennan (co-primary supervisor) Date: 24/12/2019
Purpose: The purpose of this review was to synthesize the literature about spinal cord injury and employment, focusing on sample demographics, indicators of employment outcome, and the methods used. The review included literature from the previous decade; 2006–2017.

Methods: A systematic quantitative literature review methodology was utilized, wherein papers’ characteristics were extracted and categorized in a database according to their topics, employment outcome indicators, populations, locations, and methods. Frequency tables were generated and cross-tabulated to yield conclusions about the outcomes of the studies and the methods and samples used to yield these outcomes.

Results: The review highlighted three key themes; the emergence of broader employment outcome measures that go beyond employment rate; a lack of consistency in the reporting of sample characteristics such as time since injury or ethnicity; and the relative lack of research focusing on people with newly acquired spinal cord injury.

Conclusions: The literature review identified a number of limitations in the existing research including the lack of standardized reporting of employment outcomes and a need for increased consistency in reporting sample characteristics. In addition, there are gaps in the research about people with newly acquired spinal cord injury, particularly regarding the timing of interventions.
Introduction

Traumatic spinal cord injuries (SCI) are catastrophic injuries that can permanently alter every domain of a person’s life. Usually occurring during early adulthood, these injuries may impact on a person’s working life, and have an enduring effect on their career trajectory [1]. The benefits of employment after SCI are numerous, including improved quality of life [2], physical and mental health [3], and greater opportunity for social interaction [3]. Despite a relatively large amount of research investigating opportunities to improve employment participation after SCI, employment rates following SCI are typically between 30–40%, are much lower than the Australian general population employment average of 65% [4].

The research into employment outcomes following SCI is characterized by complexity, a variety of methods and an array of outcome indicators. This complexity is compounded by the many different factors including complex social, economic, geographical, and political factors [5–8]. In addition, methodological differences and lack of consensus regarding indicators of employment outcomes make it difficult to compare research findings [9]. Altogether, these factors have resulted in a research field with pervasive geographical, socioeconomic, and methodological differences that are difficult to understand and synthesize results.

Previous reviews

Fourteen literature reviews have been published on employment following SCI in the last decade. Previous literature reviews have focused on the barriers or determinants of employment after injury [9–13], the value of working after injury [14], or evaluated the existing vocational rehabilitation programs for people with SCI [15–17]. These reviews have established the influence of demographic factors in obtaining employment after injury, including age, time since injury, education, and race. A longer time since injury and being white are both associated with enhanced quality of employment outcomes, including higher
employment rate and more hours worked [18,19]. Thus, these demographic factors must be clearly reported, as unclear or inconsistent reporting may result in some populations being underrepresented within the literature, potentially limiting the extent to which studies’ results may be aggregated or compared.

Another challenge highlighted in prior reviews is the difficulty in operationalizing the concept of employment. While employment rate is the “gold standard” in SCI research, evidence suggests that pervasive definitional problems, such as single point in time versus longitudinal measurement, and the inclusion of students or volunteers as “employed”, render this outcome measure difficult to compare between studies [9]. Employment rates may also fail to capture underemployment, instability of employment and job dissatisfaction. The collection of more comprehensive quality indicators of employment outcomes, including employment intensity, job retention, income, job satisfaction, and time taken to return to work has the potential to provide more meaningful data about employment outcomes following SCI [20]. While these outcome indicators have some empirical support, the extent to which these measures are utilized, and how they are operationalized, remains unclear.

Overall, prior research in this area has pointed to a lack of consistency in the reporting of outcome indicators including employment rate and a lack of attention to personal factors and time passed since injury [1,2].

**Aims and significance**

This review aims to explore the extant literature about employment following SCI in order to map how employment after SCI is investigated and the populations with whom it is investigated. The review adopted a broad view, summarizing the published literature about employment after SCI in terms of the methods used, outcomes explored, and populations studied. That is, the “who”, the “how” and the “what” of the research rather than the specific conclusions reached. Systematically investigating these aspects of the extant literature was
intended to quantify the areas of inconsistency cited in previous reviews and identify other factors, which may confound results and limit comparison or aggregation of data, as well as informing future research directions.

Research questions

The following research questions were used to guide the review:

1. How is the research about employment after SCI approached and designed?
2. How is employment outcome conceptualized and measured?
3. Who is and who is not represented in the published research?

Method

Systematic quantitative literature review method

A systematic quantitative literature review was performed using a methodology developed by Pickering and Byrne [21] to systematically search and categorize literature. The systematic quantitative review method has been widely used in a range of disciplines [22–24]. This method of review provides reproducible and reliable assessments of the current knowledge in the fields being reviewed. The way papers are identified, selected, and categorized are clearly stated, thus minimizing the potential of bias that may occur in some narrative reviews. This method allows the spread of research, the types of methods adopted, and the types of results that are reported in the literature to be quantified and systematically reported. This has the advantage of clearly delineating the reliability of conclusions from the literature, highlighting weakness or gaps in the research and informing future research agendas.

The systematic quantitative review methodology involves entering studies into a database under categories, and tabulating these categories to yield frequency tables, which provide a quantitative assessment of the literature field. These tabulations facilitate comparison of areas or variables with a greater number of studies, and those with fewer studies. Based on these quantitative assessments, inferences can also be made about the research field,
particularly in highlighting which areas are perceived as being worthy of inquiry and which areas are yet emerging. This methodology provided a meaningful synthesis of the research to address the methodological inconsistencies inherent in the research field, which precluded meta-analysis.

**Search strategy**

The literature search was carried out between March and November 2017. Firstly, English language research publications related to employment following SCI were identified by searching electronic databases of academic journals, namely ProQuest, CINAHL, Web of Science and Google Scholar. Keywords for the search were “spinal cord injury” or “spinal injury” and a combination of the following terms; “vocational rehabilitation”, “occupational rehabilitation”, “employment”, “rehabilitation counseling”, “job”, “income”, “trajectory”, and “participation”, and variations and combinations thereof. Additional papers were identified from the reference lists of papers found in the database search.

The studies were required to meet the following inclusion criteria to be considered for review:

1. Employment outcome (employment rate, hours worked, satisfaction, time taken to return to work) included as a study variable.
2. Study was original research; reviews were excluded.
3. Participants were between the ages of 18 and 65, with traumatic SCI.
4. If a mixture of traumatic and non-traumatic SCI, or a mixture of SCI and other similar conditions, traumatic SCI-related data must be able to be differentiated.
5. Study published between 2006 and 2017 inclusive.
6. Peer-reviewed, English language publications.
Articles published prior to the year 2006 were excluded to ensure a contemporary perspective. This literature search adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines outlined by Moher and Liberati [25].

Selection and screening

Primary screening of titles and abstracts was completed by the first author. Studies which fulfilled the inclusion criteria were obtained in full text and subjected to further screening. Secondary screening revealed several studies, which were arguable in meeting the inclusion criteria. These were determined through discussion, and included when agreed by all three authors.

Quality appraisal

Studies were appraised using the Mixed Methods Appraisal Tool (MMAT) [26] designed for systematic reviews, which include quantitative, qualitative, and mixed-method studies. The MMAT was chosen for its efficiency and reliability [27], as well as its applicability to complex, context-dependent interventions [28]. The MMAT includes four criteria each for qualitative and quantitative studies, with additional criteria for mixed-method studies. Scores are calculated as a percentage of criteria met. In accordance with the appraisal method, efforts were made to obtain supplementary reports and publications to minimize the risk of underestimating the quality of the studies reviewed. Differentiation was also made between evidence of biases and a lack of reporting. In keeping with the broadly descriptive aims of the review, and considering the overall high quality of the studies, studies were not weighted or excluded on the basis of the quality appraisal, and are discussed in the results below.

The literature review database

A Microsoft Excel database was developed to record the general characteristics of each article included for review, including: author; year of publication; journal title; journal discipline/topic; geographic location including continent and country; research design and
methodology; inclusion and exclusion criteria; sample size; age, gender, ethnicity and injury characteristics of the sample; results; limitations; and quality appraisal score.

Categories were broken down into subcategories based on an initial perusal of the literature. For example, “journal discipline/topic” was divided into 10 subcategories; including discipline specific categories such as psychology, social work, rehabilitation counseling, physiotherapy, occupational therapy, and nursing; and more general categories such as spinal injuries, disability and rehabilitation, vocational rehabilitation, and “other”. Design was similarly divided into cross-sectional, longitudinal, literature review, descriptive/observational, analytical, prospective, retrospective, and randomized controlled trial. Time since injury and ethnicity were also broken down into subcategories.

Categories were tested in an iterative process consistent with the systematic quantitative review methodology [21]. The first 10% of the studies were entered into the database to test the workability of the database categories. Additional categories were added for study limitations, journal disciplines, design, methods, and time since injury. The race/ethnicity category was also refined to reflect terminology used in the studies, and a “not specified” category added.

Studies investigating employment after SCI often reported large ranges in time since injury. In order to reflect this, it was initially decided that all time since injury subcategories would be selected that were relevant to the study, such that a range of 4–25 years would have the 3–6 years, 6–10 years, 10 þ years, and 20 þ years subcategories selected. This was changed during data entry to reflect the average time since injury given, due to the number of studies that failed to report age range. The range in time since injury was noted in a separate subcategory for studies, which provided this information. A “not specified” subcategory was also added.
**Qualitative designs**

Qualitative designs were included in the review in accordance with the systematic quantitative review methodology, and the data from these was used to contextualize the quantitative findings.

**Analysis**

Studies were recorded in the database in reverse chronological order. Summary tables were generated for each category, and cross-tabulated with year of publication, geographical location, and/or methodological approach in order to provide a broad overview of the research field, including the ways in which employment success is reported in the literature; sample characteristics; and where the research was undertaken.

**Results**

**Studies included**

Figure 1 shows the PRISMA flowchart for this literature search. The initial search identified 547 studies for potential review after duplicates were removed. Initial screening of titles and abstracts identified 235 articles for removal based on the exclusion criteria. After a full text screen of the remaining studies, further 210 articles were identified for exclusion, leaving a final review set of 102 studies.
Overall quality appraisal

The overall quality of the articles was quite high. Of the 102 studies, 48 (47%) scored 100% on the MMAT, 41 (40%) scored 75%, with only 13 (13%) scoring 50% or lower. The studies were split into highest (100%) versus lowest quality (<75%) for comparison. Key differences included the number of qualitative studies; 9 of the 11 qualitative studies reviewed were in the lower quality category. The lower quality group also had a higher proportion of cross-sectional studies; 70% of studies in lower quality group utilized a cross-sectional design, compared with 57% of the high quality group. The groups did not differ substantially in research topics, and had similar samples in terms of injury level and time since injury. The most common source of bias in the quantitative studies was unacceptable (14%) or not clearly
described response rates (27%), issues with missing data (41%), and insufficiently reported or biased recruiting procedures (13%). The most common source of bias amongst the qualitative studies was a lack of reflexivity; 55% of the qualitative studies did not satisfy this criterion. It was also common for qualitative works to overlook the context of the research (27%).

**General characteristics: journal disciplines and research topics**

Table 1 shows the literature profiled by journal discipline/topic and publication year. The number of research publications on employment after SCI has increased substantially since 2006. There was a marked tendency towards publishing in spinal injury or disability and rehabilitation journals, rather than profession-specific journals. This potentially reflects the multi-disciplinary nature of vocational rehabilitation in this area. There was also a trend away from publishing in vocational rehabilitation or rehabilitation counselling journals in the past five years (2012–2016 inclusive), which may be attributed to a greater acceptance of employment as a goal of primary rehabilitation within broader spinal injury and generalist rehabilitation journals.

The research topics across the reviewed studies were diverse, and were categorized into five main topic areas. The most researched topic was factors influencing the employment outcomes (60%), followed by descriptions of employment-related experiences after injury (22%), vocational rehabilitation services following SCI (14%), and the benefits or value of working after injury (5%).
How is employment outcome conceptualized and measured?

Eighty-five of the included studies utilized employment-related variables, such as employment rate, retention, intensity, satisfaction, income, and vocational interests, as outcome variables in their research. Eleven studies utilized these factors as inclusion or exclusion criteria, to examine only the experiences of participants who were either employed or unemployed. Finally, six of the studies utilized employment as a predictor variable, examining the impact of employment or related variables on other aspects of the participants’ lives.

Table 2 shows the most frequently reported employment outcomes following SCI in descending order of frequency. Employment rate was the most commonly reported employment outcome, with 74% of studies utilizing this indicator, followed by hours worked (18%), income (17%), job retention (15%), job satisfaction (7%), and time taken to return to work (5%). Other outcomes noted were vocational interests [29,30], occupation type [31], work stress [32], and return to work intention [33]. It was noted that most studies utilized more than one measure of employment outcome, and many studies utilized multiple outcome indicators.
Table 2.

Measures of employment success following spinal cord injury.

<table>
<thead>
<tr>
<th>Measure</th>
<th>No. of studies</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>Employment rate</td>
<td>75</td>
<td>74</td>
</tr>
<tr>
<td>Hours worked</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Income</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Job retention</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Job satisfaction</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Time taken to RTW</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Employment definition

The method by which employment rate was operationalized varied across the extracted literature. Six studies (6%) did not provide an operational definition of employment or a description of how employment was measured. Five of these studies investigated vocational preferences or interests, for which the measurement of employment is less relevant, and one study used post-injury income as the primary employment-related variable. The definitions provided in the remaining 96 studies are summarized in Table 3. Three broad themes of employment definition emerged. Firstly, 52 (54%) used a salary-dependent definition such as “working for pay”, “gainfully employed”, “competitive employment”, or “earning minimum wage”. Thirty-five (36%) of studies sorted participants into dichotomized categories; “employed” versus “unemployed”. Of these studies, 70% used “volunteer”, “retired”, and “homemaker” categories in addition to employment status. It was common to collapse these down to the employed versus unemployed dichotomy, with about 60% of these counting students, homemakers, and volunteers as unemployed. Finally, about 9 (9%) of the studies reviewed used an hours-dependent measure, such as “working at least 12 h per week”.

60
Table 3.

*Employment outcome measure definitions*

<table>
<thead>
<tr>
<th>Measure</th>
<th>No. of studies</th>
<th>%</th>
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<tbody>
<tr>
<td>Employment rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salary/wage dependent</td>
<td>52</td>
<td>54%</td>
</tr>
<tr>
<td>Categorised</td>
<td>35</td>
<td>36%</td>
</tr>
<tr>
<td>Hours threshold</td>
<td>9</td>
<td>9%</td>
</tr>
<tr>
<td>0-10 hours pw</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>Differentiated between FT &amp; PT 10+ hours pw</td>
<td>18</td>
<td>19%</td>
</tr>
<tr>
<td>Employment intensity Hours worked per week</td>
<td>16</td>
<td>16%</td>
</tr>
<tr>
<td>Non-specified change in hours</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Job Retention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed at some point</td>
<td>5</td>
<td>5%</td>
</tr>
<tr>
<td>Mean duration of employment</td>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>Employment status over time</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>Exploration of impacting factors</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amount per week/month/year</td>
<td>9</td>
<td>9%</td>
</tr>
<tr>
<td>Non-specified change in income/impacting factors</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>Job satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job/employment satisfaction construct</td>
<td>7</td>
<td>7%</td>
</tr>
<tr>
<td>Time to RTW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years between injury and first job</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>

*Employment rate*

Seventy-five (74%) of the 102 studies reviewed utilized employment rate as an outcome measure. Three papers were excluded from this analysis due to purposive sampling resulting in 100% employment rates [31,32,34]. The remaining 72 (71%) studies were included in the analysis of employment rate. The average employment rate at the time of study across these 72 studies was approximately 34% (SD ¼ 15%), with a range of 15–76%.

Approximately, a quarter of the studies differentiated between full-time and part-time work. The overall average full-time employment rate was 21%; substantially lower than the overall reported employment rate.
Employment intensity

Eighteen (25%) of the studies utilized employment intensity as a measure of employment outcome. The majority of the studies reporting intensity measured this in hours worked per week. A small number (2%) investigated the impacting factors on employment intensity without providing concrete definitions; this was particularly a limitation of the qualitative studies. Average hours ranged from 21 h per week to 40þ, often with large standard deviations, reflecting the large individual variability in hours worked per week.

Job retention

Fifteen studies (15%) utilized job retention as an employment outcome measure. This measure was most commonly conceptualized as withdrawing from employment; having worked since injury but being unemployed at the time of study (5%), followed by mean duration of employment in weeks or months (4%) or longitudinally measuring employment status over time (3%). Approximately one-fifth of the studies reporting on employment duration used qualitative approaches to examine the factors impacting job retention.

Income

Seventeen studies (17%) investigated income as a measure of employment outcome. Over half (53%) of the studies reporting income operationalized it as amount earned per week, month, or year. A significant proportion (47%) investigated perceived changes in income or factors impacting on income, without specifically operationalizing this measure.

Job satisfaction

Relatively few studies (7%) utilized job satisfaction as an employment outcome measure. This measure was usually directly investigated using bespoke survey measures. Some studies also hinted at the construct with phrases such as “meaningful work” [35] and “work stress” [32]. The reviewed studies consistently suggested that job satisfaction and job retention are strongly linked [36–38].
Time taken to return to work

Five studies (5%) utilized time taken to return to work as an employment outcome measure. Three of these studies conceptualized this as being months or years between injury and first job [20,39,40]. Across these studies, the average time to return to work was approximately 3.5 years. The remaining studies conceptualized time taken to return to work as being percentage of time worked after injury [41], or tabulated the number of participants to return within the first year, the second year, and so on [42].

Reporting trends over time

The use and discussion of employment outcomes appears to be changing over time. There is a slight upward trend noted in both the discussion and utilization of the outcomes “hours worked”, “income”, “job retention”, and “job satisfaction”. This may reflect increasing awareness of the value of more comprehensive employment outcome indicators, increasing diversity in how employment success is defined and measured, as well as greater sophistication in how employment outcomes are conceptualized.

How the research is approached and designed

Design

A large portion (66%) of the studies reviewed utilized a cross-sectional design, with the remaining studies being longitudinal (34%). Most (84%) longitudinal studies were prospective designs.

Methods

Table 4 shows the overall types of data collected in the studies reviewed. The majority of studies (84%) were quantitative designs, primarily using surveys or secondary analysis of national databases, and corroborating with medical records and chart extraction.

Approximately 16% of the studies collected qualitative or mixed-methods data, with individual interviews being the most common qualitative collection method (65% of qualitative
studies), followed by case studies (15%), focus groups (10%), and ethnography/observation (10%). Reported qualitative theoretical frameworks included ethnography, phenomenology, and grounded theory, although many of the studies’ qualitative components did not report a theoretical framework.

Table 4.

Methods in the extracted literature.

<table>
<thead>
<tr>
<th>Method</th>
<th>No. of studies</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative</td>
<td>86</td>
<td>84%</td>
</tr>
<tr>
<td>Survey</td>
<td>62</td>
<td>61%</td>
</tr>
<tr>
<td>Secondary data analysis/databases</td>
<td>24</td>
<td>24%</td>
</tr>
<tr>
<td>Medical examination</td>
<td>7</td>
<td>7%</td>
</tr>
<tr>
<td>Qualitative and mixed methods</td>
<td>19</td>
<td>16%</td>
</tr>
<tr>
<td>General (interviews)</td>
<td>13</td>
<td>13%</td>
</tr>
<tr>
<td>Case studies</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>Focus groups</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Observation</td>
<td>1</td>
<td>1%</td>
</tr>
</tbody>
</table>

Who is and is not represented in the research

Geographic location

Pertaining to study contexts, the literature was profiled by geographical location. The majority of the research was undertaken in North America (59%), followed by Europe (22%), Asia (10%), Australasia (10%), Africa (1%) and South America (0%). Restricting the review to studies published in English may have limited the number of Asian, African, and South American literature extracted.

Research inclusion and exclusion

It was more common to report inclusion criteria than exclusion criteria, with 81 studies (79%) detailing inclusion criteria and 56 (55%) reporting exclusion criteria. Fifty-six studies (55%) included participants of labour market participation age; commonly between 16 and 65 years. Twenty-three studies (23%) reported excluding participants, who were less than one or two years post injury. Twelve studies (12%) reported excluding participants with untreated
psychological or substance use disorders, and 11 (11%) studies excluded those with cognitive impairment.

**Demographics**

Table 5 summarizes the participant demographics reported in the studies reviewed. The majority of studies utilized a mixed sample with regards to injury level (92%) and gender (88%). A small number of studies (12%) investigated male-only or male-dominated (over 95% male) samples.

Table 5. Participant samples by injury level, gender, time since injury and ethnicity.

<table>
<thead>
<tr>
<th>Participant Characteristics</th>
<th>No. of studies</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Injury level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed (both para- and tetraplegia)</td>
<td>94</td>
<td>92%</td>
</tr>
<tr>
<td>Paraplegia</td>
<td>5</td>
<td>5%</td>
</tr>
<tr>
<td>Tetraplegia</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed sample</td>
<td>90</td>
<td>88%</td>
</tr>
<tr>
<td>Male only/male dominated</td>
<td>12</td>
<td>12%</td>
</tr>
<tr>
<td>Female only/female dominated</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Time since injury 0–3 years</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4–5 years</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>6–10 years</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>11–20 years</td>
<td>31</td>
<td>30%</td>
</tr>
<tr>
<td>20+ years</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>Not specified or clearly defined</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>Range given only</td>
<td>9</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>52</td>
<td>51%</td>
</tr>
<tr>
<td>Not specified</td>
<td>45</td>
<td>44%</td>
</tr>
<tr>
<td>African American/black</td>
<td>36</td>
<td>35%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>24</td>
<td>24%</td>
</tr>
<tr>
<td>Indigenous</td>
<td>17</td>
<td>17%</td>
</tr>
<tr>
<td>Asian</td>
<td>16</td>
<td>16%</td>
</tr>
<tr>
<td>Immigrant</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>
Time since injury

Reporting of time since injury was generally inconsistent or unclear. There was a spike in the trend of reporting time since injury for the years 2010–2011 and this could reflect a greater proportion of cohort studies, as opposed to reviews, in those years. There is a clear upward trend in the reporting of time since injury, reflecting a greater awareness of this as having a key role in employment following SCI.

Cross-sectional and longitudinal designs were considered for time since injury separately given that times since injury are difficult to compare between these two categories. Of the 102 studies reviewed, 45 cross-sectional studies and 35 longitudinal studies provided an average time since injury or a range of times since injury for their sample. The remaining studies either did not specify (16%) or indicated that the population was described elsewhere (2%). Generally, reporting was inconsistent and often unclear, with time since injury often ranging decades within the same samples.

Forty-five cross-sectional studies provided an average time since injury for the sample. Of these, 26 (58%) studied people 10–20 years post injury. Seven (16%) used older samples of 20 years or more since injury, six (13%) between 3 and 10 years, and six (13%) between 0 and 3 years.

Of the 35 longitudinal studies, 21 (60%) began data collection during hospitalization, or within the first year after injury. About half of these (47%) explored predictors of employment at follow up. Others described post-injury outcomes (24%), investigated an outcome variable other than employment rate (19%) such as vocational preferences or intentions, or described early intervention vocational rehabilitation programs (10%). Of the remaining longitudinal studies, six (17%) began data collection between 10 and 20 years since injury, and four (11%) between three and 10 years. The remaining four studies did not clearly report the time since injury data for the sample.
Ethnicity

The most commonly studied group was Caucasians (46%), followed by African Americans (39%), Hispanic (21%), Indigenous (15%), Asian (14%), and immigrants (2%). As with time since injury, it was noted that a significant number (39%) of publications did not clearly report the races or ethnicities of their sample.

The reporting of ethnicity was further analysed to show trends over time. There was a general upward trend apparent for most non-Caucasian populations, reflecting an increasing ethnic diversity in the studies over time. Instances of non-reporting of ethnicity have remained stable, indicating that non-reporting is not decreasing over time, or not decreasing quickly enough to be captured over a 10-year timespan.

There were also trends evident in the location of the studies that did not report the race or ethnicity of their samples; approximately 74% of European and 73% of Asian studies did not explicitly report ethnicity, followed by 58% of Australasian studies and 22% of North American papers.

Discussion

The literature reviewed highlights the increasing diversity in the way employment outcomes following SCI are being conceptualized and reported. More recent literature seems to reflect the move away from reporting simple employment rates to consider other factors, such as employment intensity, job retention, job satisfaction and time taken to return to work. Also evident was the complex impact of demographic, geographical, and methodological factors on these employment outcomes, and on the reporting of these outcomes. Several trends and patterns were noted and informed recommendations for future research.

Broadening methodological horizons

The majority of studies utilized cross-sectional designs, with longitudinal designs accounting for approximately one-third of the investigations. Prior research has found mixed
support for many of the relationships between independent variables and employment outcome indicators [13]. Robust longitudinal designs could confirm causal relationships, particularly for emerging employment outcomes [2,43].

Quantitative studies were ubiquitous throughout the extracted literature. While quantitative studies yielded concrete data on employment outcomes, they risk excluding the perspective of the consumer [43]. Qualitative research has the potential to enrich existing knowledge, enhance real-world utility and potentially strengthen ties between researchers and the SCI community [43]. Future mixed methods or qualitative research should focus on the emerging employment outcomes, to explore potential “unknown unknowns” in these areas and provide a foundation for confirmative quantitative enquiry.

**Emerging outcomes**

Mean employment rate in the studies reviewed was 36%, with European and Asian studies reporting the highest rates and lowest variabilities, while North American and Australian studies reported lower rates. Likewise Young and Murphy [1] also observed similar trends in employment rate and variability within regions. Attempts to compare employment rates should be interpreted with caution, given the large variability in the geographical locations and sample demographics included, as well as other contextual factors such as services available and financial incentives or dis-incentives. Prior research has also highlighted definitional inconsistencies and the impact on reporting employment rate [9]. Preliminary analysis, however, suggests that this may be less important than differences in demographic and geographical location, which contribute substantially to the inconsistency in employment rate.

Beyond employment rate, some studies focused on broader employment outcomes including job retention, employment intensity, income, job satisfaction, and time taken to return to work as outcome measures. Job retention and employment intensity are increasingly
being recognized as indicators of the quality of employment outcome [44–46]. However, these variables have their own methodological concerns and must be clearly conceptualized and operationalized in any research design. Job retention and employment rates are largely dependent on the definition of employment, suggesting that these indicators could potentially be limited by the concerns discussed above, such as failing to account for underemployment. Nevertheless, employment quality indicators are straightforward to operationalize, address existing research limitations such as the dichotomization of “employed versus unemployed”, and may reflect more meaningful indicators of change in the participants’ lives.

The importance of job satisfaction is increasingly acknowledged as playing an important role in job retention, as job withdrawal is often linked to dissatisfaction with work roles [47]. While job satisfaction is recognized as a key employment outcome, relatively few studies have adopted it as such. The research has identified that matching the skills and experience of the worker with the demands of the role potentially enhances job satisfaction after SCI [35,37], indicating potential for vocational rehabilitation interventions and the use of assistive technology to enhance person environment fit and therefore support job retention in the long-term.

**Awareness of demographic factors**

Overall, population demographics and employment outcome indicators appear to be becoming more diverse over time. Reporting of demographic factors, which may have a significant impact on employment rate is increasing, albeit relatively slowly. However, there remain areas of concern in the literature. A number of studies did not report race or ethnicity, a factor which has been consistently demonstrated to impact on employment success following SCI [10]. This review found that the lack of reporting of race or ethnicity has remained constant over the 10 years reviewed. There was also a tendency for studies reporting race or ethnicity to dichotomize it into white versus non-white, a distinction difficult to capture in this review.
method and which arguably prioritizes the experience of Caucasians over other groups. Previous research report that race and ethnicity have a significant impact on return to work following SCI, which may be attributed to a number of factors, including pre-existing socioeconomic differences, accessibility of vocational rehabilitation services, educational opportunity after injury, and potential discrimination by employers [10,48,49]. Greater clarity and consistency in the reporting of race or ethnicity could identify and clarify areas of disparity between ethnic groups and potentially facilitate better targeting of vocational services.

A significant portion of the studies reviewed also demonstrated a lack of clarity and consistency in the reporting of the samples’ time since injury. This lack of clarity was particularly evident in the early injury groups (zero to three years). This time period is characterized by rapid change, making time since injury more important. This could have led to the misattribution in the time since injury category, potentially confounding the information about early injury groups. Many studies also used populations with large time since injury ranges, which could potentially obscure the experiences of those with newly acquired injuries or participants who may be aging. The inconsistency in reporting, combined with the lack of research with the newly injured demographic, calls into question how much the existing conclusions about vocational rehabilitation may be relied upon when working with the early injury groups. This echoes prior research, which has called for more in-depth inquiry with this demographic in order to capitalize on the motivation, momentum, and support available during the initial rehabilitation period [50,51].

There was also a clear gap in the perspectives of people beyond the early injury stage, particularly between two and eight years since injury. Samples reported in the literature tended to be either early or substantially later post-injury. Although participants in the two to eight years since injury range are included in some studies, their unique needs tended to be obscured in studies when aggregated with participants with a lengthier time since injury. Emerging early
intervention programs aim to support the early injury group by engaging them in vocational rehabilitation as early as practicable, potentially enhancing long-term outcomes. For those who participate in early intervention vocational programs, a lack of linkage with community-based services could fail to capitalize on motivation and readiness gains made during the program. Either way, more investigation is clearly needed to identify the optimal timing of early intervention vocational rehabilitation and the experiences and needs of people after their return to the community.

The dominance of North American data

More than half (55%) of the research was located within North America, primarily within the United States. Although American data has unarguably provided a basis for the majority of the research and subsequent vocational rehabilitation programs in this area, there is comparatively little international data, particularly for the emerging employment outcome indicators such as job satisfaction and job retention. In the present review, North American studies accounted for the majority of investigations into employment intensity and job retention. With relatively few international studies investigating these measures, there remains little basis for comparing and confirming the generalisability of this data to other locations.

Limitations

Although systematic reviews have many advantages over traditional narrative approaches, there are some important limitations to the interpretation of the results. Firstly, studies reviewed were limited to English language journals available through the authors’ institutional databases. This meant that relatively few articles from Africa, Asia, and South America were included. The initial literature search also yielded a relatively large volume of literature, which was subsequently limited to exclude studies focused on quality of life, of which employment is a factor. Although this was intended to balance comprehensiveness with
precision and manageability, some employment outcome data may have been excluded as a result.

A notable limitation in undertaking this review was dealing with multiple studies, which reported on the same longitudinal investigation. The most notable of these is the randomized controlled trial conducted in the USA [52]. Five articles reported different aspects of this ongoing study, utilizing variations of the same participant pool. This was dealt with by excluding many of these studies from certain analyses, but this was an imperfect solution that introduced uncertainty into the interpretation of the results.

Although the systematic quantitative review methodology is intended to be reproducible, condensing the studies into a quantitative database required a level of interpretation on the part of the researchers, particularly for studies which fit into multiple categories or that investigated multiple topics [53]. In addition, the method of breaking down some of the variables may have impacted the certainty of conclusions made about them. For example, the time since injury category was divided into month and year ranges, limiting precision to those specific ranges. Nonetheless, the systematic approach taken will facilitate follow up reviews in future.

**Recommendations for future research**

The dominance of cross-sectional methods highlighted a need for more longitudinal work, particularly with employment quality indicators such as hours worked, job retention or job satisfaction. Job satisfaction is particularly relevant given its relationship to job retention [37,38] and its salience to the consumer perspective. Longitudinal work could confirm the major antecedents of these outcomes, identifying targets for vocational rehabilitation (VR) interventions and normalizing these outcomes as part of the central goal of VR service delivery. Further research is also needed to gain consensus on the ideal way to operationalize these quality indicators to enhance the comparability and aggregation of research data.
While the experiences and perspectives of the early injury population were explored in 27 studies, approximately half of these were quantitative, longitudinal studies with significant follow-up periods of two years or more. While these studies support primary rehabilitation efforts as predictors of employment later on, long follow-ups risk overlooking participants’ experiences and needs during their initial rehabilitation and community reintegration. More qualitative work during these earlier stages would fill this knowledge gap and inform early intervention vocational rehabilitation programs. However, the qualitative work published in this area largely consists of generic qualitative components, which lacked consideration of context and reflexivity. Rigorous, theory-driven qualitative work, which takes these factors into account would provide a strong basis for intervention and further quantitative research.

Clear reporting of demographic factors, particularly time since injury and ethnicity, enhances the clarity and comparability of conclusions. Regarding other demographic factors, there was a clear gap in the literature regarding the experiences of women. Even taking into account that four times as many men experience SCI as women, there remains a gap in the articulation of women’s experiences of returning to work following SCI.

Conclusions

Employment after SCI is a complex undertaking, which involves a number of issues and perspectives. The main contribution of this review is to clarify some of the complexity, finding that the research in this area is dominated by quantitative designs, increasingly recognizes the worth of quality employment outcomes, and under-represents some key populations. The preponderance of quantitative, cross-sectional designs reflects the heavily medicalised nature of SCI research. Future qualitative studies have the potential to add the authentic voice of the consumer and help shape emerging VR programs and practices to reflect their specific needs.
The research about employment after SCI increasingly collects data on indicators of employment quality alongside employment rate. Job satisfaction, job retention, hours worked, income, and time taken to return to work are the most common of these indicators and reflect a growing recognition of the importance of suitable and sustainable outcomes beyond merely obtaining work. Job retention and hours worked are of particular interest, given the relationship of these with maintaining ongoing employment and standards of living, and further research is recommended to support the worthiness of these outcomes and standardize their measurement.

Some key populations are under-represented in the published literature. Studies tended to focus on people with either new injuries or substantially older ones, discounting people who are two to eight years since injury. More investigation is needed to explore the career experiences of people soon after they are discharged from the hospital and early intervention VR programs to establish targets for potential intervention and support long-term career development.

The findings of this review clarified the “who”, the “what” and the “how” of the research on employment after SCI, and may provide a basis for further exploration to support people with spinal injuries to go beyond merely accessing employment to gaining more suitable, durable, and satisfying careers.
References


2.3 Update

2.3.1 Method

This review was conducted with literature ranging from 2006–2017 (inclusive) and updated in October 2019 to include literature published since that review to provide a complete picture from 2017–2019. The updated review aimed to identify changes in the broad trends of the literature during this period. The method for the update followed that utilised for the earlier systematic review. The 2019 update search yielded 63 articles for initial screening. Four were excluded in the initial screening, and an additional 11 in the secondary screening, due to lack of relevance to employment or SCI. Subsequently, 48 articles were included for analysis.

2.3.2 Results

2.3.2.1 Included articles

The initial search yielded 63 articles for initial screening. Four were excluded in the initial screening, and an additional 11 in the secondary screening, due to lack of relevance to employment, or to SCI. Subsequently, 48 articles were included for analysis.

2.3.2.2 Quality Analysis

In alignment with the published review, the results of the MMAT indicated a reasonably high level of quality overall, with 22 studies satisfying 100% of quality criteria. Common sources of bias in the quantitative studies included insufficient response rates and lack of complete outcome data, raising questions as to the representativeness of the samples under study. Low response rates and participant attrition are common in SCI research, potentially due to the research burden experienced by this population (Fekete et al., 2015). Further impacting representativeness was the widespread use of convenience sampling, resulting in samples that deviated from established SCI demographics. Other areas of weakness pertained to non-reporting or unclear reporting of key variables, particularly time since injury. Areas of strength
in the quantitative research included the widespread use of standardised measures, and the
inclusion of multiple variables (particularly psychosocial variables) in analysis.

The MMAT utilises a different rating scale for qualitative studies, rating the
appropriateness of the data sources, appropriateness of analytical approach, consideration of
context, and reflexivity. The overall quality of the qualitative research was adequate, with the
majority of studies using appropriate participants and methods to address the research question.
Key areas of weakness were reflexivity, with most studies lacking adequate consideration for
the role of the researcher in data collection and analysis. This was particularly a feature of the
qualitative components of mixed-method studies.

2.3.2.3 Topics

Employment specific

Of the 48 studies extracted, 28 were specifically employment-focused. Of the 28
employment-focused articles, 36% (n=10) described RTW outcomes post-SCI, 25% (n=7)
explained the barriers or predictors of RTW post-SCI, 21% (n=6) reported outcomes relating to
specific VR interventions post-SCI, 7% (n=2) reported on participants’ awareness of VR
service availability, and 7% (n=2) described the characteristics of jobs performed post-SCI.

Non-employment specific

The remaining 21 articles extracted included employment as a demographic variable in
a descriptive study, or as a factor in a larger multivariate analysis relating to another variable
of interest. These other variables included quality of life (Fekete, Siegrist, Post, & Brinkhof,
2019; Ferdiana, Post, King, Bültmann, & van der Klink, 2018; Sohrab et al., 2019; Tzanos,
Kyriakides, Gkintoni, & Panagiotopoulos, 2019), participation (Carr et al., 2017; Krause,
Newman, Clark, & Dunn, 2017; Manzur, Perera, Mohammad Sohrab, & Islam, 2018), social
connectedness (Guilcher, Catharine Craven, Bassett-Gunter, Cimino, & Hitzig, 2019),
therapeutic recreation (Gassaway, Sweatman, Rider, Edens, & Weber, 2019), chronic pain
(Burke, Fullen, & Lennon, 2019; Burke, Lennon, & Fullen, 2018), community reintegration (Akter, Islam, Haque, Hossain, & Hossain, 2019), psychological issues (Jakimovska, Kostovski, Biering-sørensen, & Lidal, 2017; Tzanos, Mavrogenis, Gioti, Papagelopoulos, & Panagiotopoulos, 2018), health conditions (Rivers et al., 2018), resilience (Bhattarai, Maneewat, & Sae-Sia, 2018), and physical activity (Jörgensen, Martin Ginis, & Lexell, 2017).

2.3.2.4 How is the research approached and designed?

Designs

The majority of studies (75%) utilised cross-sectional designs. Of the studies that utilised longitudinal designs, the majority were prospective (21%, n=10).

Methods

The majority of studies (69%, n=33) collected quantitative data, usually in the form of a survey (60%, n=29) or secondary analysis of existing databases (8%, n=4). This was sometimes supplemented with medical exam or chart extraction (15%, n=7). 19% (n=9) collected qualitative data, primarily by semi-structured interview (8%, n=4) or focus groups (6%, n=3). 12% of studies (n=6) utilised a mixed methods approach, generally combining the most prevalent forms of collection for each aspect of the research, including quantitative surveys and qualitative interviews.

2.3.2.5 How is employment outcome conceptualised and measured?

Definition of employment

47 studies (98%) provided a definition of how employment was measured. 30 studies (63%) dichotomised the variable, classifying participants as “employed” or “unemployed”. 15 studies (31%) went further to state that the employment must be “gainful”, “competitive” or “paid”. Two studies (4%) utilised the International Labour Organization’s definition of employment of more than one hour of paid work per week.
19 studies (40%) described whether study, self-employment, sheltered employment, homemaking or volunteering were defined as “employed”. Of these studies, 32% considered self-employed participants to be employed, 21% considered students to be employed, and 16% counted sheltered employment or volunteers as employed. Retirees and homemakers were generally considered unemployed by these studies.

2.3.3 Employment outcomes

Of the 48 studies extracted, 20 (42%) studies utilised employment as an outcome measure, conceptualised as return to work rate. 11 studies (23%) considered the intensity of the employment gained, usually by reporting on differences in the fulltime and part-time RTW rates, although one study (2%) reported the average hours that the participants worked.

Outcomes beyond employment rate were less common, with four studies (8%) considering job retention, factors relating to job retention, or interventions targeted at enhancing job retention. Two studies (4%) investigated the characteristics of jobs obtained post-SCI, and one study (2%) considered satisfaction with the employment situation.

2.3.4 Who is and is not represented within the research?

Geographic location

Approximately 35% (n=17) of the extracted studies originated in Europe, followed by North America (29%, n=14), Australia and Asia (15%, n=7 each), Africa (4%, n=2) and South America (2%, n=1). This is a shift from the prior review, with European literature increasing in dominance in the two years since the initial search.

Time since injury

Of the 48 studies extracted, 45 reported on the time since injury of their participants. This was usually reported as a mean (58% of studies, n=28). Twelve studies (25%) utilised a sample an average of 11-20 years post-injury, and eight studies (17%) used a 20+ year cohort. Four studies (8%) used samples of 6-10 years, three (6%) of 0-3 years, and one (2%) of between
four and five years. It was common for times since injury to range decades within the same sample. 21 studies (44%) provided a range, and of these, 12 studies ranged a decade or greater in participants’ time since injury.

**Ethnicity**

Of the 48 studies extracted, 15 (31%) reported on the race or ethnicity of participants. The most common races or ethnicities to be reported on included Caucasian (23%), African American (17%), Hispanic (8%), Asian, (8%), and Native American (4%). It was reasonably common to collapse less common races or ethnicities into an “other” category (17% of studies). The relevance of these groups to the United States context reflects the particular tendency of American research to report on this aspect of participant demographics. Three studies outside the USA (6%) reported on participant race or ethnicity as it related to the region under study.

**Regionality**

Eleven studies (23%) reported on the geographic location of participants relative to urban centres, usually dichotomised as urban versus rural/remote (eight studies, or 17%), but it was also reported as distance from the spinal unit outpatient clinic or province lived in.

**Gender**

The majority of studies (81%, n=39) utilised mixed samples wherein the gender distribution was broadly reflective of the spinal cord injury population in general. This included studies that had a gender distribution of 80-65% men and 20-35% women. Five studies (10%) utilised a sample with an even or close to even gender ratio of 40% women or greater. Four studies (8%) used a male-dominated (95% men) or entirely male sample. No studies used a female-dominated or entirely female sample.

**2.3.5 Differences to earlier review**

In updating the literature review, it seemed there was an increase in awareness of employment as a central aspect of people’s lives, given the large number of studies extracted
for review that included employment as a variable. There was also an increased proportion of qualitative and mixed-methods studies, aligning with a broader trend within the rehabilitation literature (VanderKaay et al., 2018). There was an emerging trend of reporting on participants’ regional location (urban, rural or remote). This is a key predictor of service accessibility, service quality, eligibility for services and availability of employment (Johnstone et al., 2003; Lustig, Strauser & Weems, 2004). Its inclusion within studies accounts for these factors; therefore, it strengthens employment-related research. Finally, there was a greater proportion of studies investigating indicators of employment quality, including hours worked and job retention rates.

2.3.6 Similarities to earlier review

Like the earlier review (published in 2018), employment rate dominated as the major employment outcome considered. Definitions of employment were also similar, with the continuing tendency to dichotomise employment as ‘employed’ versus ‘unemployed’ without further description. There was also a marked tendency, in alignment with the prior review, to not collect data on or report participants’ race or ethnicity. Collectively, these factors undermine the rigour of the research on employment after SCI, given that both definitional inconsistencies and racial disparities potentially affect employment rates. Future research in this area should comprehensively report on participant demographics and the definition of employment in use.

Also, in accordance with the 2006–2017 review was the lack of research utilising participants with less time since injury, particularly in the zero to five-year group. This is despite recent research efforts to bring awareness to and capitalise on the potential of people with newly acquired injuries (Bloom, Dorsett & McLennan, 2017; Hilton et al., 2017; Middleton et al., 2015). However, emerging evidence is highlighting the vocational potential of this group (Hilton et al., 2017; Middleton et al., 2015).
Finally, in the recent literature, a lack of research exploring women’s perspectives of RTW after SCI continued to be evident. While the samples used are broadly representative of the SCI population at large, women potentially have more barriers to RTW (Bounds, Schopp, Johnstone, Unger & Goldman, 2003). Therefore, they may require a more specialised VR approach. Further research is needed that focuses on women’s experiences in RTW after SCI to identify the support needs unique to this population.

2.4 Summary and conclusions

This component of the literature review aimed to describe the general trends evident in the published literature on employment after SCI, considering the methods, measures and samples in use. This was intended to address research objectives 1 and 2, relating to investigating what constitutes successful employment after SCI, further informing the development of the Phase 3 study methodology.

The updated review indicated that most trends identified in the earlier review persisted, particularly regarding the distribution of time since injury and gender in the samples used. Promisingly, the number of studies including employment as a variable had increased, potentially reflecting an increased awareness of the role of working in people’s lives post-injury. Overall, while gaps in the knowledge base persist, the field of employment after SCI appears to be flourishing. The topic is approached from multiple angles and disciplines, indicating broad consensus that employment is both valuable and achievable for people with SCI.

The review indicated that attainment of employment (employment rate) remains the standard measure by which VR is assessed, and is therefore considered a successful employment outcome. What “employed” actually meant seemed to be a matter of differing methodological perspectives, but ultimately translated to any number of hours of paid employment. Such definitions have implications for the quality of outcomes, as simply working
for money may not engender the full benefits of meaningful, satisfying employment. For example, employment rate may not capture underemployment, and a “successful” participant may therefore continue to struggle financially. It may also not capture unsatisfying or tokenistic work, from which the person is more likely to later withdraw (Roessler, Rumrill & Fitzgerald, 2004). Measured at one point in time, employment rate may also overlook seasonal or contract work, which may not consistently meet the needs of this population. On the basis of this review, it is recommended that broad quality indicators are included alongside employment rate. Although there will be methodological inconsistencies in the operationalising of these outcomes, inclusion of at least one additional measure would strengthen the results of future studies, ensuring not only that services promote employment, but that they promote employment that meets consumers’ needs.

Both the earlier review and the update of the literature identified that a lack of qualitative research, particularly within the early injury period of within zero to three years post-injury, was an ongoing trend. Given that early vocational interventions are emerging that target this group, it is important that qualitative research during early rehabilitation be undertaken to elucidate the work-related needs of the consumer from their perspective. This directly informed the development of the methodology for Phase 3 of this project. The comparative lack of qualitative research is presumably the result of the influence of medical research traditions in the SCI space, and presented an opportunity for the current study to further strengthen the consumer voice within this space. Capturing these voices is particularly important when evaluating services and interventions, potentially providing more ‘real world’, useful data than quantitative research (Rose et al., 2019). Thus, Phase 3 of the project adopted a qualitative approach, specifically a phenomenological approach, in alignment with the gaps identified in Phase 2.
2.5 The Next Steps

In addition to identifying the methodological inconsistencies and informing the above systematic review article, the Phase 1 background review highlighted the potential for psychosocial factors, specifically occupational bonding and psychological resources, as potential common factors of EIVR. That is, the factors that can underpin the success of EIVR. This was further supported by the trend of inclusion of psychosocial factors as controls for individual differences evident when undertaking the Phase 2 systematic review, reflecting a pervasive awareness of the impact of the psychological domain on employment outcomes. Thus, the next step in the literature review included analysis of these common factors, to summarise the support for these within EIVR, to establish these factors as key underpinning mechanisms of EIVR programs and inform the conceptual framework of Phase 3 of the project.
Chapter 3: Conceptual Frameworks for EIVR

In addition to identifying pervasive methodological inconsistencies in the published literature, the Phase 1 background review also identified the pervasive use of psychological and psychosocial variables, usually included to control for individual differences within quantitative analysis models. It seemed that many such psychosocial factors related to the work realm, including RTW intentions, the value of work, the primacy of work and the benefits of work. Viewed through the rehabilitation counselling paradigm, it seemed possible that these factors were relevant to the construct of occupational bonding. Early intervention is a key factor in VR best practice, and the principal aim of early intervention is preserving the occupational bond.

As well as underscoring the importance of the occupational bond, the Phase 1 background review indicated that EIVR has the potential to reinforce psychological resources, particularly hope, self-efficacy, and motivation. Given these variables’ association with increased employment outcomes post-SCI (Cotner et al., 2015; Craig et al., 2015; Hay-Smith et al., 2013), it seemed that the supporting of these psychological resources was potentially a key underpinning mechanism of EIVR. In the process of investigating hope, self-efficacy, and motivation, it became apparent that these concepts are related to each other and were potentially unifiable under one conceptual framework. Psychological empowerment emerged as a useful framework encapsulating these psychological resources (Zimmerman, 2000), and aligns with the values and practice of VR in that the restoration of self-determination is the key goal.

Chapter 2 presented the results of the Phase 2 systematic review as they related to the measures and methods utilised within the published literature on RTW after SCI. The following chapter presents the results of the Phase 2 systematic review relating to the conceptual frameworks of occupational bonding and empowerment, in order to summarise the evidence.
for these concepts and establish them as the mechanisms by which EIVR promotes employment outcomes and facilitates wellbeing.

3.1 Occupational bonding

As discussed in the Phase 1 background review (Chapter 1, Section 1.3), a key justification for extending VR service provision into the early injury space is to preserve employment before it is lost. This is predicated on the idea that returning to the pre-injury employer is a 'fast track' back to employment (Krause et al., 2010), and is reinforced by the results of established EIVR programs (Middleton et al., 2015). Thus, EIVR programs are essentially capitalising on pre-existing occupational bonds, or the person’s relationship with their employer (Shrey, 1996). This concept is ubiquitous in injury management and disability management policy (e.g.: Heads of Workers Compensation Authorities, 2015), despite a limited amount of supporting evidence establishing the nature of occupational bonds. Therefore, the Phase 2 literature review aimed to bring together the literature about work-related psychosocial concepts (given that these concepts pertain to a person’s valuing of, attitude towards, and therefore relationship with work) to establish support for preservation of the occupational bond as a key mechanism of EIVR. The article also expands the theory of occupational bonding to apply to a person’s relationship with the world of work more broadly, rather than the employer specifically, to provide targets for intervention for people who are unable to return to their pre-injury employer. The following published article presents the occupational bonding component of the Phase 2 review, followed by an update covering the literature published after the article was published. A table of the literature included in this article is presented in Appendix 2, and an abridged version of the Excel database generated in Appendix 5.
Statement of Contribution to Co-Authored Published Paper Included in Chapter 3

Occupational Bonding After SCI: A Review and Narrative Synthesis

This chapter includes a co-authored paper. This systematic review was first published online on 29 January 2019 in the *Journal of Vocational Rehabilitation*. The authors of this paper are Julia Bloom, Vanette McLennan and Pat Dorsett. The authors’ pre-print is included, in alignment with the publisher’s copyright guidelines (Appendix 6).

The contribution of the thesis author to this paper involved: developing search terms and conducting database searches, extracting papers for review, screening the papers in accordance with inclusion/exclusion criteria, reviewing and analysing the literature, preparing the manuscript draft, responding to feedback from co-authors, overseeing the submission process, responding to reviewer feedback and corresponding with journal editors.

Julia M. Bloom (thesis author) Date: 20/12/2019

Pat Dorsett (primary supervisor) Date: 24/12/2019

Vanette McLennan (co-primary supervisor) Date: 24/12/2019
# 3.2 Article

## Abstract

**Background:** Emerging vocational rehabilitation services for people with spinal cord injury seek to fill the gap between hospital and community services, and preserve jobs before they are lost. This is consistent with the longstanding notion within disability management and workers’ compensation of ‘occupational bonding’, or the relationship between the person and their employer. Despite the importance of this factor, there is little research underpinning the concept of occupational bonding specifically.

**Objective:** To analyse the extant literature about vocational rehabilitation after spinal cord injury to summarise the evidence for the concept of occupational bonding after SCI.

**Methods:** A systematic review combined with a narrative synthesis of the literature.

**Results:** Evidence supported workplace-based social support, particularly from the employer, as being a key facilitator of return to work. There was also evidence of an intrinsic, values-based component describing the person’s bond to the world of work in general.

**Conclusions:** Reinforcing the employer and co-workers during return to work after a lengthy absence could facilitate employment outcomes. The person’s intrinsic bond to the world of work may also be reinforced by the vocational rehabilitation professional during the often lengthy rehabilitation period following a spinal cord injury.

**Keywords:** spinal cord injury, occupational bond, rehabilitation counselling, employment, social support.
Introduction

Spinal cord injury (SCI) is a catastrophic injury which causes immense upheaval in all domains of a person’s life. This is especially true for the work domain, which may be forever changed; people with SCI take an average of five years to re-enter the workforce (Krause, Terza, Saunders, & Dismuke, 2010), and do so at a rate of approximately 35% (Bloom, Dorsett, & McLennan, 2018; Young & Murphy, 2009). As traditional vocational rehabilitation approaches targeted at this group have not succeeded in improving these outcomes, innovative early intervention models are emerging within Australia and New Zealand (Perriam, 2008). These new approaches integrate vocational rehabilitation within inpatient hospital rehabilitation programs (Middleton et al., 2015). These are predicated on the idea that a service gap exists between the primary rehabilitation phase and vocational rehabilitation, resulting in the loss of jobs and skills which might otherwise have been preserved. This is consistent with injury and disability management industry standards, which emphasise early return to work and recover at work strategies as being key to long-term outcomes (Heads of Workers’ Compensation Authorities [HWCA], 2015). One of the mechanisms by which early return to work (RTW) has been found to be effective is through the preservation of the occupational bond; the attachment between the worker and the employer, workplace, and co-workers (Shrey, 1996). This review aims to summarise the literature relevant to the occupational bond and related concepts and identify related factors in early intervention vocational rehabilitation methods following SCI.

Occupational bond

Shrey (1996) defines the occupational bond as the psychological bond between a person and their job; including their employer, workplace, co-workers, and job role. Interruptions in this bond can potentially occur soon after injury, and are said to lead to diminished vocational outcomes (Kendall & Muenchberger, 2009). The maintenance of the occupational bond is the
basis for many workplace-based vocational rehabilitation strategies, which emphasise early contact with the injured worker and modified work tasks to facilitate reintegration with the workplace as early as possible (Kenny, 1995; Selander, Tjulin, Müssener, & Ekberg, 2015; Westmorland & Buys, 2004).

Murphy and O’Hare (2011) conceptualised the occupational bond as being maintained partly through workplace-related social support including supervisor support, co-worker support, peer support, and management-worker relationships. Their systematic review concluded that supportive work-related relationships potentially enhance RTW outcomes. This finding has been echoed within VR literature across a number of injury categories, with employer or supervisor support being potentially the most helpful. Employer support assists return-to-work both in individual cases through maintaining contact with injured workers and providing job accommodations (Driscoll, Rodger, & de Jonge, 2001; Hilton, Unsworth, & Murphy, 2017; Nordqvist, Holmqvist, & Alexanderson, 2003; Young, 2010), as well as the macro level through policy and influencing workplace culture (Jones, 2016; Miller, Gottlieb, Morgan, & Gray, 2014).

Co-worker support is also beneficial, with higher levels of co-worker support associated with enhanced RTW outcomes (Laisné, Lecomte, & Corbière, 2013). This is primarily through empathy for the injured worker and acceptance of the adjustments made to accommodate them. Job accommodations and stigma about injured workers can contribute to unsupportive or antagonistic co-worker relationships, which diminish employment outcomes (Dunstan & Maceachen, 2014; Williams-Whitt & Taras, 2010).

**Factors which impact the occupational bond**

To identify variables in the employment after SCI literature which may relate to the underlying dimension of occupational bonding, it is useful to examine factors which may strengthen or diminish this bond. The assistance of the person with disability’s supervisor is
important in facilitating their commitment to the workplace (Hashim & Wok, 2014; Jones, 2016). The supervisor plays an important role in establishing the inclusiveness of the workplace culture, often with their adherence to hiring policies (Jones, 2016; Schur, Kruse, Blasi, & Blanck, 2009) and willingness to approve accommodations (Hashim & Wok, 2014). A supportive supervisor creates the perception of a supportive organisation, thus facilitating commitment to the workplace (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002; Rhoades & Eisenberger, 2002).

Likewise evidence suggests that a supervisor can bolster work commitment during the RTW process in a number of ways. Early contact with supervisors after an injury is a key component (HWCA, 2015), and is said to reinforce the occupational bond and facilitate RTW (Tjulin, Maceachen, Stiwne, & Ekberg, 2011). More concrete are the benefits of supervisors in timely approval of workplace accommodations, which can substantially reduce time to RTW and facilitate durable outcomes (Franche et al., 2005). Beyond returning to work, a supportive supervisor is key in retaining the gains made during rehabilitation (Young, 2010). Combining the evidence for a supervisor’s role in promoting work commitment both generally and during vocational rehabilitation, it is clear that supervisor support should be considered when investigating occupational bonding after SCI.

Traditional conceptualisations of occupational bonding include relationships between worker and supervisor, or worker and workplace. The role of co-workers has been minimised, but should not be overlooked. Co-workers impact on a person with disability’s work commitment primarily via workplace culture (Schur, Kruse, & Blanck, 2005). Co-worker acceptance or resentment of accommodations may also interfere with the application for or approval of such (Colella, 2001). Evidence suggests that co-workers also play a key role in reintegrating an injured worker into the workplace (Dunstan & Maceachen, 2014), and in maintaining retention after RTW has succeeded (Young, 2010). Beyond vocational
rehabilitation, positive relationships in the workplace strengthen work engagement (Schaufeli & Bakker, 2004), and therefore commitment to the organisation. In this way, co-workers appear to contribute to the occupational bond. Gaps in the research remain, however, about the relevance of this information to acquired disability and the associated longer-term absence from the workplace, as is often the case with traumatic SCI.

**Work commitment**

The organisational psychology field has produced numerous similar constructs. Arguably the most popular is ‘work commitment’, which measures the degree to which a person is devoted to their work (Randall & Cote, 1991). This is an umbrella term which encompasses several other forms of commitment, including commitment to the specific job role, the employing organisation, the profession, the group of co-workers, and the value of work itself (Cooper-Hakim & Viswesvaran, 2005; Randall & Cote, 1991). These concepts have all found varying degrees of empirical support, with some being correlated to each other. Some researchers assert that this is the result of conceptual redundancy, while others argue that these various forms of commitment are pieces of the same puzzle: an underlying concept which encompasses the entire story of a person’s psychological attachment to the world of work (Cooper-Hakim & Viswesvaran, 2005; Randall & Cote, 1991). Regardless of whether these are unique constructs, the delineation of these separate concepts allows for consideration of different facets of the occupational bond, and different targets for potential vocational intervention.

Evidence suggests that work commitment might function differently, or have additional barriers, for people with disability. Perceptions of low levels of support from the organisation can impact work commitment (Rhoades & Eisenberger, 2002). People with disability have been found to have more negative perceptions of their workplace, particularly if the workplace is less accommodating (Schur et al., 2009). Hashim and Wok (2014) reported that a person
with a disability’s commitment and loyalty to their employer may be impacted by the organisation’s ability to provide accommodations. This finding has been replicated and further linked to an inclusive work climate, such that disability inclusive workspaces foster the person’s commitment to their organisation (Wittmer & Lin, 2017).

Although work commitment has not been consistently extended to the vocational rehabilitation field, evidence supports this construct’s relationship to some RTW-related variables. High job involvement is associated with RTW following traumatic limb amputation (MacKenzie et al., 2006) and sickness absence (Brouwer et al., 2009); work commitment predicts RTW among sick-listed women (Holmgren, Ekbladh, Hensing, & Dellve, 2013); and valuing work is a factor in maintaining work attendance during breast cancer treatment (Nilsson, Olsson, Wennman-Larsen, Petersson, & Alexanderson, 2013). Work commitment is also related to more general work performance variables, including absenteeism (Garland, Hogan, Kelley, Kim, & Lambert, 2013; Giffords, 2009), turnover intention and job satisfaction (Zopiatis, Constanti, & Theocharous, 2014). Clearly, work commitment is relevant to a person’s desire to work, performance at work, retention of employment and enjoyment of work.

Given the relationship between work commitment to RTW variables and general work performance, as well as the conceptual overlap with occupational bonding, there is scope to support the integration of the concept of work commitment within the overall conceptual framework of occupational bonding, suggesting that the bond encapsulates both the relationship with the employer/workplace, and with the concept of working in general. There is little research, however, on the nature of this attachment in the instance of acquired disability, such as SCI, during which time the bond might be weakened. Examining the factors underpinning this bond, including supervisor and co-worker support in the existing research about employment after SCI, has the potential to provide preliminary evidence to inform the design of interventions and further research.
Aims

Therefore the aims of this review were:

a) To identify psychological constructs which may relate to the occupational bond after SCI, and summarise the support for these.

b) To identify vocational rehabilitation-related factors which may strengthen this bond, including employer and co-worker support mechanisms.

c) To identify the applicability of occupational bonding within the vocational rehabilitation space.

For the purposes of this review, ‘occupational bond’ and ‘work commitment’ will be used interchangeably, given the overlapping nature of the concepts and that the primary focus of this review is to inform potential interventions rather than a dissection of theory.

Methods

Search strategy

A search of published literature was conducted between August and September 2017. Relevant studies were identified using the electronic databases CINAHL, ProQuest, ScienceDirect and Medline. Boolean phrases were tested in ProQuest and adapted to the other databases. Search terms included: “spinal cord injury”, “occupational bond”, “work commitment”, “co-worker”, “employer”, “work attitude”, “importance of work”, “work primacy”, and “value of work” and various combinations thereof. The small number of studies identified meant that a broader search strategy was implemented, including the terms: “employment”, “return to work”, “occupational rehabilitation”, “vocational rehabilitation”, and “attachment”. Google Scholar and searching of reference lists were also used to reach saturation.
**Inclusion and exclusion criteria**

The studies were required to meet the following criteria to be considered for review:

1. Study investigated variables identified as being relevant to the concept of occupational bonding.
2. Study was original research; reviews were excluded.
3. Participants were between the ages of 18 and 65 years, with traumatic SCI.
4. If a mixture of traumatic and non-traumatic SCI, or a mixture of SCI and other similar conditions, SCI-related data must be able to be differentiated.
5. Study published between 2000 and 2017 inclusive.
6. Employment outcome (such as; employment rate, hours worked, satisfaction, time taken to RTW, and vocational interests) assessed as an outcome measure.
7. English language publications.

**Database development**

The review formed part of a broader systematic review, the detailed methodology is described elsewhere (Bloom et al., 2018). Briefly, the systematic review method used was outlined by Pickering and Byrne (2014), yields reproducible and reliable assessments of the literature field, and has been widely adopted across disciplines (Pickering & Byrne, 2014). The method entails systematic identification, screening and database entry of the selected studies that is transparent and minimises the potential for bias. This method also allows for tabulating of the studies in a set area, to identify the amount of evidence for a concept or intervention in situations which preclude meta-analysis. In accordance with the method, a Microsoft Excel database was developed to record details including: author(s), year of publication, focus of the research (injured person, employer, or co-worker), research design and method, results, and any limitations identified.
Selection and screening

Screening of titles and abstracts was completed by the first author. Studies which fit the inclusion criteria were read in full and subjected to further screening. Studies that were arguable in fulfilling the inclusion criteria were determined through discussion and included through unanimous agreement of the authors.

Quality appraisal

Studies were appraised using the Mixed Methods Appraisal Tool (MMAT) designed for systematic reviews which include quantitative, qualitative and mixed-method studies (Pluye et al., 2011). The MMAT was chosen for its efficiency and reliability as well as its applicability to complex, context-dependent interventions (Pluye et al., 2011). The MMAT includes four criteria each for qualitative and quantitative studies, with additional criteria for mixed-method studies. Scores are calculated as a percentage of criteria met. In accordance with the appraisal method, efforts were made to obtain supplementary reports and publications to minimise the risk of underestimating the quality of the studies reviewed. Considering the overall high quality of the studies, studies were not weighted or excluded on the basis of the quality appraisal, and are discussed in the results below.

Analysis and synthesis

Studies were tabulated using the Microsoft Excel database generated. Studies were grouped by research focus (person, employer, or co-worker) to facilitate analysis. Studies which reflected more than one focus were analysed within each relevant category, such that studies which investigated both employer and co-worker were analysed under both the employer and co-worker categories. This was intended to maximise the amount of information gathered, given the small number of studies in some categories. Re-using studies, combined with the significant methodological heterogeneity, precluded quantitative analysis. Thus a narrative approach to synthesis was used.
Results

Studies included

The initial search strategy yielded 546 studies, which were downloaded for further screening. Screening for relevance to the inclusion criteria reduced this number to 162. Further reading identified 137 articles to be excluded on the basis of relevance to the topic, leaving 25 included in the review. Figure 1 shows the PRISMA diagram for this screening process.

*Figure 1* PRISMA flowchart describing the literature search and screening process
**Quality appraisal**

The overall quality of the studies included was high. Of the 25 studies, 16 (64%) scored 100% on the MMAT, with seven (28%) scoring 75% and two (8%) scoring 50%. Sampling procedures and low response rates were the most common sources of bias. The high quality of the qualitative research included in this review was notable.

**Study characteristics**

Sixteen of the included studies (64%) were published between the years 2010-2016. Studies were descriptive, and mostly cross-sectional (80%). Considering the longitudinal designs, there were six (24%) prospective studies and one (4%) retrospective study. Data collected was mainly quantitative, 16 (64%) collecting quantitative data and nine (36%) of the studies having a qualitative design. One (4%) study with mixed methods. Samples ranged in size, with the qualitative samples being necessarily smaller (ranging from six to 60), and quantitative larger (from 57 to 1134). Most of the studies (56%) investigated variables intrinsic to the person, including work attitudes, work importance and interest measures. Twelve (48%) papers investigated employer support. Co-worker support and vocational rehabilitation services had the least publications (12%). Four (16%) studies fit into multiple categories, with three (12%) investigating both employer and co-worker, and one (4%) investigating employer and injured worker. See Appendix 5 for database detailing the above categorisation.

**Psychological constructs**

Fourteen (56%) of the papers included investigated psychological factors intrinsic to the injured worker after SCI (Burns, Boyd, Hill, & Hough, 2010; Chan & Man, 2005; Crewe, 2000; Fadyl & McPherson, 2010; Hay-Smith, Dickson, Nunnerley, & Anne Sinnott, 2013; Kennedy & Hasson, 2016; Krause & Ricks, 2012; Krause, Saunders, Staten, & Rohe, 2011; Krause & Clark, 2014; Krause & Reed, 2011; Marti, Reinhardt, Graf, Escorpizo, & Post, 2012; Murphy & Young, 2005; Murphy, Young, Brown, & King, 2003; Ullah, Sarker, & Chowdhury,
These focused primarily on the value, importance or primacy of work to the person. Focus group research indicated that employed participants rated the importance of work more highly than their unemployed counterparts (Chan & Man, 2005). This was echoed by Fadyl and McPherson (2010), who indicated that a person’s values about working are taken into consideration when deciding to RTW after injury. Quantitative analysis further supported this link, with importance and primacy of work, and work ethic, being significantly associated with job-seeking behaviours and returning to work in cross-sectional analyses (Burns, Boyd, Hill, & Hough, 2010; Crewe, 2000; Krause & Reed, 2011; Marti, Reinhardt, Graf, Escorpizo, & Post, 2012; Murphy & Young, 2005; Murphy, Young, Brown, & King, 2003). Similarly, acceptance of masculine gender norms was associated with RTW in one study (Burns et al., 2010), a variable which stresses the primacy of work and self-reliance.

Two studies also investigated a motivational component, including RTW intentions (Kennedy & Hasson, 2016) and desire to RTW (Hay-Smith, Dickson, Nunnerley, & Anne Sinnott, 2013), which were both identified as being important in the RTW process. One study found that the number of people who intended to RTW after SCI increased over time, presumably in response to vocational support services (Kennedy & Hasson, 2016). Related to RTW motivation is vocational interests, or the types of jobs or training to which the person may return. Four of the extracted papers investigated these measures, which identified the types of jobs a person might be interested in after SCI, and whether these interests were stable or changed after injury. Researchers found that these interests do change after injury onset and eventually stabilise, potentially as a function of adjustment (Krause & Ricks, 2012; Krause, Saunders, Staten, & Rohe, 2011; Krause & Clark, 2014; Ullah, Sarker, & Chowdhury, 2015). Taken together, the motivational and interest studies highlight that attitudes towards work are made vulnerable in response to traumatic events such as SCI, and that there is an opportunity to develop and reinforce these attitudes during adjustment to the injury.
The evidence for work-related psychological constructs generally suggests that work value and importance impact RTW after SCI. There were, however, some limitations to these studies. There were moderate generalisability issues, either due to a lack of diversity in the sample or the limited geographical area in which the research was conducted. Small sample sizes, the use of self-reported data, participant attrition, and a lack of consideration of contextual factors were also identified. More quantitative, longitudinal research is needed to overcome these limitations and establish the exact nature of the relationship between work-related psychological constructs and RTW after injury.

**The role of the employer and co-workers**

Twelve of the papers investigated the role of employer support in returning to work after SCI (Chapin & Kewman, 2001; Cotner, Keleher, O'Connor, Trainor, & Ottomanelli, 2013; Driscoll, Rodger, & de Jonge, 2001; Gray, Morgan, Gottlieb, & Hollingsworth, 2014; Hay-Smith, Dickson, Nunnerley, & Anne Sinnott, 2013; Hills & Cullen, 2007; Krause, 2003; Krause, Terza, Saunders, & Dismuke, 2010; Murphy, Middleton, Quirk, De Wolf, & Cameron, 2011; Murphy & Young, 2006; Ramakrishnan, Mazlan, Julia, & Abdul Latif, 2011; Schonherr, Groothoff, Mulder, & Eisma, 2005). These primarily investigated returning to the pre-injury employer, with seven studies reporting this as related to positive employment outcomes. Krause (2003) found that returning to the previous employer is associated with a significantly earlier return, a result that is reinforced in three other cross-sectional studies (Krause, Terza, & Dismuke, 2010; Ramakrishnan, Mazlan, Julia, & Abdul Latif, 2011; Schonherr, Groothoff, Mulder, & Eisma, 2005). Hills and Cullen (2007) found that the majority of employed participants returned to the pre-injury employer, concluding that this support from pre-injury employers was instrumental in the RTW process. In qualitative analysis, SCI participants indicated that returning to the pre-injury employer assists RTW through familiarity and
predictability of the pre-injury job role (Hay-Smith et al., 2013) and through the support of the employer themselves (Chapin & Kewman, 2001; Murphy & Young, 2006).

Two prospective longitudinal studies nominated social support from the employer as being vital to returning to work after injury (Cotner, Keleher, O'Connor, Trainor, & Ottomanelli, 2013; Murphy, Middleton, Quirk, De Wolf, & Cameron, 2011). Murphy, Middleton, Quirk, De Wolf, and Cameron (2011) identified that social support (including from the employer) plays a significant role in returning to work within two years of discharge. An ethnographic study further reinforced this, with support from employers in the form of contact and connections reported as useful in sourcing job leads after injury (Cotner, Keleher, O'Connor, Trainor, & Ottomanelli, 2013).

Beyond obtaining work, two studies identified the role of the employer in supporting job retention after SCI (Driscoll et al., 2001; Gray, Moran, Gottlieb & Hollingsworth, 2014). Gray, Morgan, Gottlieb, and Hollingsworth (2014) outlined that worksite receptivity, including the willingness of the employer to provide job accommodations, was significantly correlated with job satisfaction. Qualitative investigation further indicated that supportive employers were instrumental in integrating assistive technology into the workplace (Driscoll et al., 2001). Both studies noted that the participants involved were already ‘success stories’, suggesting bias and limiting generalisability of their conclusions to people who are struggling to retain work, rather than RTW generally.

There were no studies which explored the role of co-workers in isolation; this was inextricably linked to the role of the employer and the workplace environment. Three studies found that co-worker support assists with returning to work after SCI (Cotner et al., 2013; Driscoll et al., 2001; Gray et al., 2014). Quantitatively, Gray et al. (2014) found that accessibility and co-worker support contributed significantly to work satisfaction. Qualitative analysis identified that co-worker relationships were important for both sourcing jobs through
networking (Cotner et al., 2013), and retaining jobs by supporting the integration of assistive technology (Driscoll et al., 2001), echoing the data for employer support.

The evidence for the impact of employer support on returning to work after SCI generally suggests that employers are important in facilitating both RTW and ongoing job retention. As was the case for psychological factors, the strength of the conclusions made was impacted by concerns for sample size and generalisability. Furthermore, while the studies reviewed highlighted the importance of the role of the employer and co-workers in RTW after SCI, the majority of the studies investigated the injured worker’s perspective. More evidence is needed to more fully investigate the nature of employer and co-worker roles during RTW after SCI and to investigate how these stakeholders may themselves be supported during and beyond the reintegration of the injured worker.

Discussion

Key findings

The current review sought to identify the role of occupational bonding and its malleability in vocational rehabilitation after SCI. Shrey’s original conceptualisation of the occupation bond described a relationship between the injured worker and their employer or workplace which could be either strengthened or weakened during the RTW process (Shrey, 1996). This was tentatively reinforced in the research about returning to work after SCI, which indicated that returning to the pre-injury employer was predictive of a sooner RTW (Krause, Terza, Saunders, et al., 2010; Ramakrishnan et al., 2011), suggesting that the occupational bond was maintained for those participants.

Supportive employers were nominated as being key to this early RTW after SCI, with their role as providers of job accommodations and assistive technology being particularly valuable (Driscoll et al., 2001; Krause, Terza, Saunders, et al., 2010; Schonherr et al., 2005). Including the employer to the fullest extent is best practice within injury and disability
management (Westmorland & Buys, 2004), and the results of this review underscore the utility of this approach. The role of co-worker support was less well-reported in the literature. This potentially indicates a lack of awareness of the importance of the co-worker perspective in supporting RTW and ongoing job retention. The reviewed studies found that co-workers are helpful for ongoing maintenance of the occupational bond after RTW has occurred (Driscoll et al., 2001; Gray et al., 2014), but more research is needed to establish type, intensity and impact of the support provided.

Interestingly, substantial evidence was found which suggested that a person’s attitude to work, primarily its importance or primacy, impacted RTW outcomes after SCI. Importance of work (Krause & Reed, 2011; Marti et al., 2012), work attitude (Murphy & Young, 2005; Murphy et al., 2003), primacy of work (Burns et al., 2010), work ethic (Crewe, 2000), value of work (Chan & Man, 2005), desire to RTW (Hay-Smith et al., 2013) and RTW intentions (Kennedy & Hasson, 2016) were all associated with job seeking or labour market participation after SCI. These findings echoed concepts outlined in the literature on work commitment and related forms of work attachment, indicating that there is potentially a broader relationship with working which encompasses the importance or centrality of work in a person’s life and their self-identification as a ‘worker’. While many of these measures were investigated by only one or two studies, taken together they suggest that an intrinsic attachment to “working” exists beyond the bond to the employer, and that a stronger attachment is potentially related to enhanced vocational outcomes after SCI.

**Implications for research**

The majority of the research was undertaken from the perspective of the worker, highlighting a gap in the understanding of employers’ and co-workers’ experiences of the RTW process after SCI. Investigating this gap could identify ways to support employers and co-
workers in this complex process, inform the development of holistic vocational rehabilitation interventions, and better serve the needs of people with SCI and their employers.

The evidence for underlying psychological factors such as work attitude indicate that there may be different components of the occupational bond which work together; the relationship with the employer and the relationship with the concept of “working” more generally. Given the lack of research on the occupational bond specifically, there is an opportunity for qualitative research to articulate participants’ attitudes towards the world of work after SCI and inform the development of a potential model of occupational bonding which incorporates these two components.

Aside from the gaps in research already identified, there was no research identified which considered the impact of other psychological factors on occupational bond or related constructs. Of particular relevance was self-efficacy, which has been found to be related to both RTW after SCI (Kent & Dorstyn, 2014), and to work commitment (Klassen & Chiu, 2011; Luthans, Zhu, & Avolio, 2006), indicating a potential relevance to the occupational bond. Although there was substantial evidence on self-efficacy after SCI, no studies linked this to work importance, work primacy or other related constructs. Research is required to establish whether these concepts are indeed linked, and describe the nature of this relationship.

**Implications for practice**

Practitioners should be aware of vulnerability of the occupational bond after SCI. Given the changeability of attitudes and interests in this early stage, preservation of this attachment is best targeted at the early stages of the injury; during inpatient rehabilitation (Krause & Ricks, 2012; Krause & Clark, 2014; Krause, Terza, Saunders, et al., 2010). Integrating vocational rehabilitation within the inpatient context could also preserve the occupational bond by reinforcing the plausibility and primacy of work after SCI (Johnston et al., 2016). Integration
of VR also allows for medical or allied health interventions to be targeted towards vocational goals, enhancing employment outcomes.

In supporting the employer relationship aspect, current vocational rehabilitation practices attempt to maintain the bond through contact between the worker and employer or co-workers, or workplace based strategies. Given the seriousness of the injury, workplace-based (or ‘recover at work’) approaches are infeasible during this early time, meaning that regular contact between the worker and their employer or co-workers is key. There is some evidence to suggest, however, that the quality of these interactions is more important than the quantity, with some workers describing feeling ‘harassed’ by regular contact (Selander et al., 2015). The rehabilitation professional should support positive contact as much as possible, by providing and facilitating free-flowing and proactive communication.

The psychological aspect also provides some targets for intervention from the work commitment literature. For example, professional commitment describes the attachment between a worker and their profession (Randall & Cote, 1991). This may be maintained outside the workplace through professional development activities, reading trade journals, or mentoring less experienced workers. This would also have the effect of preserving professional skills, enhancing re-employability in the event that the worker cannot return to their pre-injury job. As mentioned above, self-efficacy enhancing efforts could also underpin RTW after SCI and potentially reinforce the occupational bond.

Taken together, these strategies could form the basis for a holistic plan which keeps the worker connected to their occupation and identity as a “worker”, while also facilitating job accommodations and workplace-based social support.

**Limitations**

There were several important limitations to this review. The methodological heterogeneity rendered quantitative synthesis less meaningful, resulting in the need for
narrative synthesis of the results. This may have somewhat limited the benefits of adopting the systematic quantitative review method. The review also combined studies that investigated concepts which theoretically overlapped, but which were in fact distinct from each other, introducing some uncertainty into these results. Similarly, there is no current empirical link between the concepts of occupational bonding and work commitment. Nevertheless, the authors suggest that these concepts are complementary, and that there is evidence to suggest that these are two components of the same concept; the relationship between a person and work.

**Conclusions**

Although early recovery at work is implausible in the SCI space, early intervention vocational rehabilitation efforts have shown promise in this population (Middleton et al., 2015). Additionally, Krause (2003) indicates that returning to the previous employer can preserve jobs and reduce time taken to RTW. Although the occupational bond was not specifically researched in these cases, these studies indicate that maintenance of this bond could be a factor in the RTW outcomes of people with spinal cord injuries.

Results from the review indicate that the person’s psychological bond to the idea of work has been researched in more depth. Constructs including the importance of work and employment identity support the notion that a stronger bond to the world of work itself can facilitate employment outcomes. Theoretically, this relationship is via motivation, with a stronger occupational bond potentially generating internal drive, or vice versa. This research is relatively sparse, but shows promise for utility in VR programs. A person’s bond to their workplace, and to the idea of work, can be reinforced by the vocational rehabilitation counsellor. Some authors indicate that social support forms a crucial piece of this puzzle, with work-related social support acting to preserve the bond (Murphy & O’Hare, 2011). This support can be provided through consistent, quality contact with co-workers and the employer during recovery (Selander et al., 2015). Other strategies may include early reinforcement of the
possibility and primacy of work by the rehabilitation counsellor; integrating vocational rehabilitation activities within the primary rehabilitation environment; maintaining professional identity through professional development, and raising self-efficacy. Although these strategies are often already utilised within VR contexts, more research is needed to explore their extension into the earlier stages of a SCI, to inform the development of holistic approaches to vocational rehabilitation in this space, and to support the conceptualisation of a model for the occupational bond.
References


3.2.1 Update

3.2.2 Method

Given that the prior occupational bonding review was conducted for literature published in 2000–2017 (inclusive), another literature search was carried out in October 2019 to identify additional studies relevant to occupational bonding after SCI, published January 2018–October 2019 (inclusive). The methodology for this update was as described in the publication presented above (Bloom, McLennan & Dorsett, 2019). The search strategy yielded 63 articles for initial screening. Of these, eight met the inclusion criteria for the current review update (Fekete, Siegrist, Post, & Brinkhof, 2019; Hilton, Unsworth, Stuckey, & Murphy, 2018; Holmlund, Guidetti, Eriksson, & Asaba, 2018; Holmlund, Hultling, & Asaba, 2018; Inge et al., 2018; Calliga & Porto, 2019; Solheim & Leilufsrud, 2018; Trezzini, Schwegler, & Reinhardt, 2018).

3.2.3 Updated Results

The results of the literature review broadly aligned with the prior review, continuing to build support for an expanded conceptualisation of the occupational bond, including a bond to both one’s specific employer and the world of work generally. Shrey’s (1991) conceptualisation of the occupational bond as the relationship a person has with their employer was further supported, with capitalising on pre-injury networks (Inge et al., 2018) and returning to the pre-injury employer associated with positive RTW outcomes (Solheim & Leilufsrud, 2018; Trezzini, Schwegler & Reinhardt, 2018). Similarly, the role of the employer in supporting work reintegration was emphasised, particularly in facilitating job accommodations and worksite adjustments. Thus, a good relationship with the specific employer promotes positive RTW outcomes, in alignment with traditional conceptualisations of occupational bonding.
There was also evidence that participants could have a broader connection to the world of work more generally. This was underscored by participants’ general sense of the importance (Calliga & Porto, 2019; Holmlund, et al., 2018) and inevitability of work post-injury (Holmlund, Hultling & Asaba, 2018), which was itself supported by strong self-identification as a ‘worker’ (Hilton, Unsworth, Stuckey & Murphy, 2018). There was evidence that work is personally fulfilling in reaffirming a person’s life roles (Calliga & Porto, 2019; Fekete et al., 2019). Further, participants noted the utility of networking in maintaining their connection to the world of work while not in the workforce (Inge et al., 2018). Taken together, these studies provided further support for the conceptualisation of the occupational bond as including a connection to the world of work, underpinned by a person’s identity and values.

3.3 Summary and Conclusions

While the literature review update provided further support for the existence of the occupational bond, and a broader conceptualisation thereof, there remains a need for research directly investigating this construct. In particular, qualitative research could explore participants’ feelings of the inevitability of work in the face of events that make working more challenging and inform the development of interventions to reinforce this sense of inevitability. The role of participants’ self-identity as a worker is another potential target for intervention, as research suggests that reinforcing that identity early in rehabilitation could prevent unemployment from becoming entrenched (Inge et al., 2018). EIVR is one such intervention that has the potential to reinforce the benefits and achievability of work during early rehabilitation, support participants’ ongoing self-identification as ‘workers’, thereby buttressing the occupational bond at a time when it is challenged.

3.4 Empowerment

Empowerment broadly refers to the process by which a person increases their capacity to control their life (Rappaport, 1995). The psychological domain of empowerment is
underpinned by a number of psychological resources, generally involving positive appraisals of the future (hope), a belief in one’s capacity to affect outcomes (self-efficacy) and the desire to do so (motivation) (Breeding, 2008; Fawcett, 1994; Kosciulek, 2001). These underpinning processes were identified in the Phase 1 background review as being potentially reinforced within EIVR, implying that EIVR promotes psychological empowerment. Furthermore, the aims of empowerment philosophically align with the aims of EIVR – to promote capacity and motivation, ultimately facilitating self-determination (Hilton et al., 2017; Middleton et al., 2015). That empowerment has both a psychological and a contextual element is particularly appropriate for EIVR, given that return to work is heavily context dependent. This combination of elements allowed for clear conceptualisation of how EIVR might work to support psychological empowerment, while also addressing the elements of the person’s context that may be disempowering.

Empowerment sits within a suite of similar concepts in health research, including engagement, enablement, activation, and participation (Fumagalli et al., 2015). There is considerable definitional overlap between these concepts – they are often used interchangeably in the literature. These concepts involve, to some degree, assessing and promoting a person’s capacity to self-determine, and their motivation to do so. Fumagalli et al (2015) mapped these concepts and their relationships to each other in the context of health care, concluding that empowerment is conceptually the most similar, including both building capacity and motivation. Enablement and engagement were both defined as effects of empowerment, such that an empowered person is both ‘enabled’ (has capacity) and ‘engaged’ (is motivated) (Fumagalli et al., 2015). Also considering the aforementioned contextual element of empowerment, empowerment was considered the most appropriate conceptual framework for the current project.
The following published article details the results of this conceptual component of the Phase 2 review, and is followed by a summary of Phase 2 of the project. A table of the literature included in this article is presented in Appendix 2, and an abridged version of the Excel database generated in Appendix 7.
Statement of Contribution to Co-Authored Published Paper Included in Chapter 3

VR to Empower Consumers Following Newly Acquired SCI

This chapter includes a co-authored paper. This systematic review was first published online on 25 June 2020 in the *Journal of Vocational Rehabilitation*. The authors of this paper are Julia Bloom, Pat Dorsett and Vanette McLennan. The article is reproduced in this thesis with permission in alignment with the publishing agreement (Appendix 6).

The contribution of the thesis author to this paper involved: developing search terms and conducting database searches, extracting papers for review, screening the papers in accordance with inclusion/exclusion criteria, reviewing and analysing the literature, preparing the manuscript draft, responding to feedback from co-authors, overseeing the submission process, responding to reviewer feedback and corresponding with journal editors.

Julia M. Bloom (thesis author) Date: 20/12/2019

Pat Dorsett (primary supervisor) Date: 24/12/2019

Vanette McLennan (co-primary supervisor) Date: 24/12/2019
3.5 Article

Abstract

BACKGROUND: Emerging early intervention vocational rehabilitation (EIVR) services aim to improve employment outcomes after SCI. Beyond employment, EIVR services present an opportunity to support psychological resources, potentially promoting coping and adjustment. The construct of psychological empowerment represents several such resources, including hope, self-efficacy, and motivation.

OBJECTIVE: To analyse the extant literature on employment after SCI published since 2006, to synthesise the support for and usefulness of the psychological constructs that underpin empowerment in the return to work process, particularly as they pertain to the early phases of rehabilitation.

METHODS: A quantitative approach to systematic review, combined with a narrative synthesis of the literature.

RESULTS: Hope, self-efficacy, and motivation were found to be related to RTW after SCI. Research gaps were identified, particularly relating to studies with newly-injured participants. The findings were contextualised within an empowerment framework.

CONCLUSIONS: An empowerment model of EIVR could serve to both promote employment outcomes and support psychological wellbeing during early recovery from SCI. Further research is needed to develop this model, establish its use in practice, and explore the benefits of EIVR for a person’s psychological wellbeing.

KEYWORDS: spinal cord injury, hope, rehabilitation counselling, employment, motivation, self-efficacy, empowerment.
Introduction and background

Spinal cord injuries (SCI) are catastrophic events that can interrupt every domain in a person’s life. Career trajectories are often disrupted significantly, with long term employment rates of approximately 30-40% and return to work (RTW) occurring an average of five years after the initial injury (Bloom, Dorsett, & McLennan, 2018; Krause, Terza, Saunders, & Dismuke, 2010). In response to these low rates of employment, emerging vocational rehabilitation (VR) programs introduce VR during primary rehabilitation. The aim of these services is twofold; to enhance employment outcomes in the long-term, and to inspire hope that working, and therefore “a normal life”, is possible after SCI (Ramakrishnan et al., 2016). Questions remain, however, about the effectiveness of such services during the early stages of recovery, given the significant physical rehabilitation and psychosocial adjustment that the person must undergo.

Ville and Winance (2006) suggest that a period of recovery must be undertaken in order to maximise the person’s capacity to “appropriate”, or self-direct, their career trajectory after SCI. Evidence suggests, however, that this adjustment period is shorter than previously thought, with participants reporting readiness to make career decisions within a month of injury (Fadyl & McPherson, 2010). Incorporating strategies to support psychological resources in these early stages could work to bridge these ideas – VR could contribute to adjustment and the gaining of independence rather than burdening the client during the early rehabilitation phase, and ultimately enhance the person’s capacity for appropriation of their career trajectory. The psychological empowerment construct encapsulates many such resources. Although vocational rehabilitation systems may be complex and disempowering, and environments inaccessible, the psychological processes which underpin empowerment may be reinforced in the VR context.
Empowerment and vocational rehabilitation

Empowerment is conceptualised in a number of ways across various disciplines. Broadly understood as the process by which a person gains control over their life (Rappaport, 1995), empowerment is also conceptualised as a motivational state (Thomas & Velthouse, 1990), a state of increased capacity (Staples, 1990), and a precursor to self-determination (Fawcett et al., 1995). These different facets of empowerment have been applied in the health and human services, where empowerment frameworks are used to promote self-direction of care (Anderson & Funnell, 2010) and facilitate health behaviour change (Woodall et al., 2010). These conceptualisations of empowerment seem well-suited to vocational rehabilitation, wherein a goal is restoring self-determination. This is particularly the case following spinal cord injury, where one’s capacity for self-determination may be challenged.

Evidence suggests that psychological empowerment is beneficial to a person’s wellbeing, and to improved mental health (Baba et al., 2017). For people with SCI specifically, adjustment to the injury can be a time during which coping skills and resilience are challenged. Despite this, relatively few interventions have been identified that aim to strengthen psychological resources after SCI (Peter et al., 2012). Psychological empowerment encapsulates many such resources (Zimmerman & Warchausky, 1998), making it a useful framework for reinforcing psychological wellbeing after SCI. Given that the goals of VR align with the conceptualisations of empowerment discussed above, EIVR is potentially well-positioned to fill this service gap and support psychological resources during adjustment to SCI.

Empowerment theory

Empowerment within the vocational rehabilitation space may be understood as the process by which a person gains control over their life, or over the aspects of their life that are important to them. Although empowerment is conceptualised and operationalised in a variety
of ways according to the population under investigation, there are some common components, including an internal psychological component and an external contextual/environmental component.

Zimmerman’s (1990) conceptualisation of psychological empowerment identified three facets; intrapersonal processes such as self-efficacy and motivation to control; interactional factors including the environment; and a behavioural component referring to the person’s actions taken on the journey to becoming ‘empowered’, such as participation in organisations.

Building upon this theory, Fawcett et al’s (1994) contextual-behavioural theory of empowerment proposed two dimensions – the person and the environment – with the overall level of empowerment being a function of these two parts. Personal variables include competence, knowledge, skills, experiences and psychological/physical capacity. Environmental factors are said to both promote and limit empowerment, through the provision of resources and the presentation of barriers respectively. A rehabilitation-specific model proposed by Kosciulek (2001) also posited two underlying components; internal/psychological factors such as sense of control, competence and future orientation; and situational/social aspects like work skills, interpersonal skills, and “savvy”.

Within vocational rehabilitation specifically, Breeding (2008) proposed an empowerment framework for rehabilitation counselling, identifying self-efficacy, locus of control and outcome expectations as major underpinning processes. These factors, particularly self-efficacy and outcome expectations, are malleable in the VR context through the raising of self-knowledge, facilitation of mastery experiences, and the provision of information (Breeding, 2008).

Interventions at the environmental/contextual level may include advocacy, the provision of information, and the removal of physical barriers (Fawcett et al, 1994). However, the changes required to promote empowerment at the societal level are rarely achievable within
individual VR. The internal/psychological components, nevertheless, may be supported within the VR context generally, and within early intervention VR after SCI specifically. According to the aforementioned theories, these empowerment processes may include self-efficacy, future orientation, and personality factors such as locus of control.

Motivation is closely tied to conceptualisations of empowerment with some researchers suggesting that empowerment is itself a motivational state (Thomas & Velthouse, 1990). The relationship between empowerment and motivation has made empowerment prevalent in the field of organisational psychology and human resources, which have found links between empowerment and work engagement (Spreitzer, 1995). Brooks and Young (2011) highlighted the overlap between the two processes in the educational context, finding a strong positive correlation between learner empowerment and intrinsic motivation, and a strong negative correlation with extrinsic motivation. Given these links with empowerment and the well-documented impact of motivation within VR, motivation was also incorporated as a psychological process of interest in this review.

**Underpinning processes and SCI**

**Motivation**

Motivation has been shown to be related to employment outcomes across a range of domains, including for the chronically ill (Berglind & Gerner, 2002), people with schizophrenia (Saperstein, Fiszdon, & Bell, 2011), and vocational rehabilitation (VR) service recipients (Iwanaga et al., 2018). Motivation is also associated with enhanced rehabilitation outcomes after SCI, including increased physical activity (Kerstin, Gabriele, & Richard, 2006) and better pain self-management (Molton, Jensen, Nielson, Cardenas, & Ehde, 2008). Pain, fatigue, secondary health conditions and depression may diminish motivation after SCI (Hammell et al., 2009; Hammell, 2010), subsequently diminishing engagement with the rehabilitation plan and negatively impacting outcomes.
**Self-efficacy**

Self-efficacy is an important indicator of whether a person will attempt a certain behaviour, making it particularly relevant within the vocational rehabilitation context that relies heavily upon a person’s impetus to engage with the rehabilitation plan. This sense of self-belief may be diminished following SCI due to the subsequent loss of functional independence (Craig, Nicholson Perry, Guest, Tran, & Middleton, 2015; Fadyl & McPherson, 2010). Self-efficacy is associated with a range of positive outcome indicators after SCI, including quality of life (Hampton, 2000), subjective wellbeing (Hampton, 2004), social participation (Craig et al., 2015), and the prevention of secondary health conditions (Munce et al., 2016; Spungen, Libin, Ljungberg, & Groah, 2009).

**Hope**

Positive appraisals of the future are also associated with positive outcomes after SCI, with hope having the strongest evidence base. High levels of hope are said to be integral to recovery from both acute and chronic illnesses and injuries (Lohne, 2001), promote coping and psychosocial adjustment after SCI (Dorsett, 2010; Nunnerley, Hay-Smith, & Dean, 2013), and support psychological health and subjective wellbeing during re-integration into the community (Brazeau & Davis, 2018). Hope is also associated with increased community participation after SCI (Blake, Yaghmaian, Brooks, Fais, & Chan, 2018). The related concept optimism has similar effects, promoting life satisfaction after SCI (Byra, 2016), protecting against despair and promoting psychological wellbeing (Geard, Kirkevold, Løvstad, & Schanke, 2018), and supporting functional health status in the long term (Vassend, Quale, Røise, & Schanke, 2011). These positive benefits, and the association of hope with participation, suggest that hope may play and an integral role in employment outcomes after SCI.
This review

Previous research has largely focused on determinants of RTW after SCI, including demographic variables like age, education or time since injury (Anderson, Dumont, Azzaria, Le Bourdais, & Noreau, 2007; Ottomanelli & Lind, 2009; Trenaman, Miller, Querée, & Escorpizo, 2015; Yasuda, Wehman, Targett, Cifu, & West, 2002), and contextual variables such as employment history (Ottomanelli & Lind, 2009) or available vocational rehabilitation interventions (Roels, Aertgeerts, Ramaekers, & Peers, 2016; Trenaman, Miller, & Escorpizo, 2014). Taken as a whole, prior research reflects the preponderance of demographic factors in the literature base, and the clear need to develop and target vocational service provision to this population, while overlooking the importance of the individual’s psychological resources in the RTW process.

However, a meta-analysis was undertaken by Kent and Dorstyn (2014) with the aim of investigating differences in psychological variables between employed and unemployed groups. The best support was found for psychological wellbeing (anxiety or depression), quality of life, and life satisfaction, with a variety of individual factors such as self-efficacy and adjustment having weaker or inconsistent associations with employment after SCI. However, another systematic review investigating the role of psychological resources in the adjustment process found that self-efficacy and self-esteem were most consistently linked with adjustment outcomes after SCI (Peter, Mueller, Cieza, & Geyh, 2012). Peter and colleagues noted that these associations were rarely extended to key rehabilitation outcomes including participation, of which employment is an important part, potentially explaining the lack of consistent linkage between self-efficacy, adjustment, and SCI identified by Kent and Dorstyn (2014). Given the stringent inclusion criteria necessary for meta-analysis, this review method may overlook qualitative studies and potentially exclude research without standardised measures. While these exclusions ensure rigorous analysis and highly reliable conclusions,
they are potentially less suitable in identifying evidence in the emerging field of EIVR post-SCI, and may exclude emerging factors that could promote self-determination and therefore assist in the RTW process after SCI.

**Aims**

Much of the existing research has examined employment outcomes for participants often many years post injury. Research has identified a gap in knowledge pertaining to the employment situation of people with newly acquired SCI. Vocational rehabilitation offered soon after injury represents an opportunity to preserve pre-injury jobs, which is said to prevent the loss of pre-injury skills and preserve the bond between the person and their employer, maintaining long-term career development across the lifespan (Bloom, Dorsett, & McLennan, 2017). There is a corresponding lack of research about the specific psychological or intrinsic constructs that may have relevance when working with newly injured individuals. As indicated above, research investigating facilitators and barriers to RTW after SCI has historically focused on physical or demographic characteristics such as functional independence or time since injury, with less research devoted to investigating the impact of psychological constructs specifically. Therefore the current review aims to explore the literature about employment after SCI to summarise the support for the psychological processes which underpin empowerment relevant to employment, particularly as they relate to newly-acquired injuries.

**Methods**

**Search strategy**

The literature search was carried out between March 2016 and October 2019. Firstly, research publications related to employment following SCI were identified using the electronic databases ProQuest, CINAHL, Web of Science and Google Scholar. Keywords for the search were ‘spinal cord injury’ or ‘spinal injury’ in combination with the following terms; ‘vocational rehabilitation’, ‘occupational rehabilitation’, ‘employment’, ‘rehabilitation counselling’, ‘job’,

**Inclusion and exclusion criteria**

The following inclusion criteria were applied for inclusion in the review:

1. Study investigated variables identified as being relevant to employment after SCI.
2. Study was original research; reviews were excluded.
3. Participants were between the ages of 18 and 65 years, with traumatic SCI.
4. If a mixture of traumatic and non-traumatic SCI, or a mixture of SCI and other similar conditions, SCI-related data must be differentiated.
5. Study published between 2006 and 2019 inclusive.
6. Employment outcome (such as; employment rate, hours worked, satisfaction, time taken to RTW, and vocational interests) assessed as either a predictor or outcome measure.
7. English language publications.

Articles published prior to 2006 were excluded on the basis that rehabilitation, compensation environments, and the labour market itself have undergone significant changes since the early 2000s, rendering research published before 2006 less relevant.

**Quantitative synthesis**

The review formed part of a broader systematic review, the detailed methodology is described elsewhere (Bloom, Dorsett & McLennan, 2018). The systematic review method used was a quantitative approach outlined by Pickering and Byrne (2014). This method has been widely adopted across disciplines and yields reproducible and reliable reviews (Pickering & Byrne, 2014). The method minimises bias through systematic and transparent identification, screening and database entry of the selected studies. It also allows for tabulating of the studies to identify the amount of support for a concept or intervention in situations that preclude meta-
analysis. In accordance with the method, a Microsoft Excel database was developed to record details including: author(s), year of publication, research design and method, results, and any limitations identified. In addition, each paper was also classified based on whether internal states or traits, such as optimism or personality factors, were considered in relation to employment outcomes. The intrinsic predictors of employment recorded for each paper included: mental health conditions; resilience; hope; motivation; personality factors; optimism; and ‘other’, which included predictors that did not fit into the other broad categories. It was also noted whether these were reported to impact on employment outcomes, or on the vocational rehabilitation process itself.

Selection and screening

Screening of titles and abstracts was completed by the first author. Studies that appeared to fit the inclusion criteria were read in full and included or discarded based on the inclusion criteria. Studies that were debatable in fulfilling the inclusion criteria were determined through discussion with the authors and included through unanimous agreement.

Quality appraisal

Studies were appraised using the Mixed Methods Appraisal Tool (MMAT) designed for systematic reviews which include studies with a variety of designs and methods (Pluye et al., 2011). The MMAT was chosen for its ability to deal with qualitative, quantitative and mixed-methods designs, as well as its reliability and its applicability to complex, context-dependent situations like employment after SCI (Pluye et al., 2011). The MMAT includes criteria each for qualitative and quantitative studies, and additional criteria for mixed-method studies. Scores are calculated by tabulating the percentage of criteria met. Efforts were made to obtain supplementary reports and publications to minimise the risk of underestimating the quality of the studies reviewed.
Analysis and synthesis

Themes were sorted according to the major domain assessed; work-related concepts, hope/optimism, perceptions of own resources/self-efficacy, and perceptions of supports. Studies that reflected more than one major domain were analysed within each relevant category, such that studies that investigated both future orientation and perceptions of supports were analysed under both of these categories. Although this was intended to maximise the amount of information gathered, there was a significant disadvantage to this approach. Substantial methodological heterogeneity was evident in the extracted studies, and combined with the re-use of data in subsequent publications, precluded a large amount of quantitative analysis. Thus, where appropriate, a narrative approach to synthesis was used.

Results

Studies included

The review formed a part of a larger, more comprehensive review of employment after SCI, for which the initial search identified 614 articles for potential review after duplicates were removed. Initial screening of titles and abstracts excluded another 302 articles based on the exclusion criteria. A full-text review of the remaining articles identified a further 185 articles for exclusion, leaving a final set for the broader review of 117 studies. Of these, a final set of 33 studies were identified that explored intrinsic psychological factors related to empowerment and employment after SCI. The PRISMA diagram relating to the literature search and screening is presented in Figure 1.
Considering the literature as a whole, there was a slight upwards trend in the number of studies that investigated intrinsic concepts in each year from 2006 to 2019, and when considered as a proportion of the total number of studies extracted it appears that the relevance of intrinsic constructs to employment following SCI has increased in the previous five years.

**Quality appraisal**

Of the 33 studies included, 16 (50%) met all of the major criteria (and rated 100%) on the MMAT tool, indicating a study without prominent sources of bias. A further 15 studies
scored 75%, and two studies scored 50%. The most common sources of bias were sampling procedures, particularly convenience sampling, and low response rates.

**Study designs**

Cross-sectional research was dominant, with 24 (70%) studies adopting such designs. Ten studies (30%) adopted a longitudinal design. Twenty-four studies (73%) collected quantitative data, followed by qualitative (15%), and mixed data (12%).

**Motivation**

Eight (24%) studies investigated the impact of intrinsic drive on employment after SCI. Motivation was unanimously associated with RTW in both cross-sectional and longitudinal research, with studies indicating that intrinsic energy directed towards RTW goals facilitates employment. Seven studies conceptualised this as motivation, with one study operationalising this concept as ‘RTW intention’ (Kennedy & Hasson, 2016). Factors said to enhance motivation to RTW were positive relationships with rehabilitation professionals and family members (Wilbanks & Ivankova, 2015); valuing work (Middleton et al., 2015); a higher level of endorsement of gender norms (Burns, Boyd, Hill, & Hough, 2010); and desiring normalcy (Hay-Smith et al., 2013; Wilbanks & Ivankova, 2015). Financial motivation and intrinsic work ethic were also notable factors (Wilbanks & Ivankova, 2015). Two studies identified a relationship between motivation and RTW such that high motivation was a facilitator and low motivation a barrier to employment (Cotner et al., 2015; Hansen, Mahmud, & Bhuiyan, 2007).

Average times since injury within studies investigating motivation ranged from newer injuries (less than 12 months) (Kennedy & Hasson, 2016; Middleton et al., 2015) up to 20+ years since injury (Krause & Reed, 2011; Wilbanks & Ivankova, 2015), suggesting that motivation may remain an important factor beyond the initial rehabilitation phases.
Self-efficacy, self-perceptions and internal resources

Constructs pertaining to a person’s perceived control over their situation as it related to their RTW were investigated in eight (24%) studies. This was usually conceptualised as ‘self-efficacy’, or a person’s confidence in their ability to perform a task or exert control over a given situation. The studies found mixed support for its relationship to returning to work following SCI. Three studies reported that increased self-efficacy was indicative of increased employment rates (Craig et al., 2015; Miller, 2009; Umucu, Lee, Wu, & Chan, 2016). Within the VR context, Middleton et al. (2015) included self-efficacy building efforts within an early intervention VR program, emphasising its utility in this setting. Qualitative research within a similar injury population concluded that SCI can result in a devastating loss of self-confidence, which may be ameliorated through early intervention self-efficacy and self-confidence raising efforts (Fadyl & McPherson, 2010).

In operationalising the perceptions of self, Smedema, Chan, and Phillips (2014) investigated the impact of core self-evaluations (CSE), one component of which is generalised self-efficacy, finding that high CSE is related to employment following SCI via an increase in hope. Krause and Broderick (2006) also found that a high internal locus of control, or a high level of confidence in one’s ability to impact outcomes, was associated with increased rate of RTW.

Hope or future orientation

Future orientation was acknowledged in the literature as being of potential importance to returning to work after SCI; six (18%) studies investigated this area, finding empirical support for its relationship to RTW after SCI. Evidence supported hope as being related to working after SCI (Hay-Smith et al., 2013; Krause & Pickelsimer, 2008; Smedema et al., 2014). Optimism (Glaessel et al., 2012; Middleton et al., 2015) positive appraisals (Middleton et al., 2015), and interest in the future (Glaessel et al., 2012) were also perceived to be
predictors of positive vocational outcomes. These investigations of hope and related variables were undertaken mostly with participants at least 10 years post injury, highlighting a gap in the research relating to how hope operates within the new injury space.

**Other measures**

Two studies (6%) observed a link between perceptions about SCI and/or disabilities and employment after SCI. Fadyl and McPherson (2010) highlighted that people with SCI often have preconceived notions of what a person with SCI can do, and these notions can influence employment decisions. Quantitatively, Kennedy et al. (2010) found that a negative perception of disability is associated with reduced participation and life satisfaction after SCI, potentially due to these participants’ belief that the injury was more unmanageable than others with a more positive perception of disability.

**Discussion**

Synthesising the various theories of empowerment suggests that psychological empowerment is underpinned by three psychological variables: self-efficacy, hope, and motivation. These variables are associated with a broad range of outcomes post-SCI, and are said to promote psychological wellbeing and coping after injury. The current review found that these three factors are also linked to improved employment outcomes, suggesting that they are useful factors to target in VR for this population. These results, combined with the protective effects of these variables, indicate that an empowerment framework of EIVR may be useful in promoting employment outcomes and strengthening psychological resources for people with newly acquired injuries.

**Motivation**

Some theories of empowerment suggest that motivation and psychological empowerment are linked, such that empowerment is an intrinsically motivated state (Spreizer, 1995; Thomas & Velthouse, 1990). The current review found that studies about employment
after SCI tend to measure motivation broadly, without differentiation between intrinsic and extrinsic motivation. It seems that all motivation is useful in the VR space, insofar as the goal is obtaining employment. Evidence suggests that extrinsic motivation, such as financial need or insurance-mandated VR, undermines employment outcomes in the long-term, diminishing job satisfaction and increasing turnover intentions (Kuvaas et al., 2017). This is an important consideration for VR services in promoting sustainable outcomes, and therefore more research on the impact of extrinsic versus intrinsic motivation within VR is recommended.

Although intrinsic motivation was not directly investigated, factors that might serve as intrinsic motivators have been identified in prior reviews (Bloom, McLennan & Dorsett, 2019). Intrinsically motivated tasks are driven by personal rewards, such as a sense of satisfaction or enjoyment derived from the task (Deci & Ryan, 2000). Therefore, the valuing or salience of work is potentially an intrinsically motivating factor when considering RTW after SCI. Research suggests that the importance, value, or primacy of work is related to employment post-SCI (Burns et al., 2010; Krause & Reed, 2011; Marti et al., 2012). Qualitatively, personal beliefs about the value of working were said to come into play when making career decisions soon after injury (Fadyl & McPherson, 2010). These factors are said to be components of a person’s occupational bond, or their connection to the world of work (Bloom, McLennan & Dorsett, 2019). Although evidence supporting the conceptualisation of the occupational bond is limited, this construct presents useful targets for intervention when considering intrinsic motivation after SCI.

**Self-efficacy**

Relating specifically to the new injury group, research highlighted that self-efficacy and confidence potentially decrease following injury, commensurate with the loss of physical function (Fadyl & McPherson, 2010). Self-efficacy was mostly supported as a facilitator of participation and employment for this group (Craig et al., 2015), with one VR trial including
self-efficacy raising efforts in their program (Middleton et al., 2015). Going beyond the new injury group, there was mixed support for generalised self-efficacy, with two studies finding no significant relationship between self-efficacy and employment (Ferdiana, Post, de Groot, Bultmann, & van der Klink, 2014; Murphy, Middleton, Quirk, De Wolf, & Cameron, 2011). Ferdiana et al. (2014) suggested RTW self-efficacy may be a more appropriate construct than generalised self-efficacy due to its stronger predictive relationship with RTW amongst people with musculoskeletal disorders. Viewing this process through an empowerment lens, the presence or absence of contextual factors may be moderating the relationship between self-efficacy and employment outcomes, such that self-efficacy promotes outcomes when there is an ‘empowering’ environment.

**Hope**

There were comparatively few studies on the role of hope, or other constructs relating to the role of positive expectancy, in RTW after SCI, however the results of these few studies are promising. Hope was supported as being related to employment for injury groups spanning one to 10+ years since injury (Hay-Smith et al., 2013; Krause & Pickelsimer, 2008; Smedema et al., 2014), suggesting that its importance does not diminish over time. Although no studies examined this construct within the new injury group, researchers proposed that hope or ‘interest in the future’ enhances motivation in the VR program (Glaessel et al., 2012; Middleton et al., 2015). These findings align with the empowerment perspective, which suggests that positive expectations underpin the motivated state of being “empowered” (Kosciulek, 2001). Beyond employment or VR, research suggests that hope is protective, promoting coping and adjustment and preventing despondency after SCI (Dorsett, 2010; Glaessel et al., 2012; Lohne, 2008). These findings highlight the benefits of reinforcing hope after SCI, and support the integration of an empowerment framework of VR for this population, of which hope is a key component.

**Empowerment and EIVR**
Although the review demonstrated support for psychological empowerment for people with SCI, there was a clear gap in the literature about people with newly acquired SCI (within the first year of injury). Psychological empowerment is potentially more relevant during this early time when conceptualisations of the self and hope for the future are challenged by this significant life event. As increased self-efficacy and hopefulness are associated with adjustment after SCI (Craig, Tran & Middleton, 2009; Dorsett et al., 2017), there is an opportunity for EIVR to reinforce these psychological resources during this time and potentially support psychological wellbeing during early rehabilitation. Further research could explore psychological resources in the new injury phase and establish the role of EIVR in strengthening or reinforcing these resources.

Implications for research

Mixed support was found for some variables, particularly self-efficacy or self-appraisal. This is potentially due to the highly contextualised nature of employment – environmental accessibility, service availability and discrimination can impact on RTW after SCI (Anderson et al., 2007). Empowerment theory suggests that there is a contextual/environmental component of empowerment, whereby inaccessible environments, prejudice and challenging service arrangements can be disempowering, regardless of a person’s psychological resources (Fawcett, 1994). VR traditionally aims to mitigate the impact of these factors through job matching, advocacy, information provision and job accommodations. Combined with the results of this review, there is clear potential for the utility of an empowerment model of vocational rehabilitation after SCI which takes into account both individual and environmental factors, and more research is needed to develop this model.

Supporting self-efficacy and hopefulness within EIVR could potentially augment the broader rehabilitation program. From an empowerment perspective, promoting hope and self-efficacy is theoretically motivating, potentially enhancing participants’ engagement with the
rehabilitation program. These factors are also protective psychological resources that potentially promote coping and adjustment, further supporting recovery. Despite these benefits, there are relatively few interventions targeted at strengthening psychological resources for this population (Peter et al., 2012). Emerging evidence suggests that EIVR contributes to this function, promoting hope and self-efficacy by focusing on possibilities and strengths rather than losses (Ramakrishnan et al., 2016). Further research is needed to confirm this function of EIVR, investigate the impact of EIVR on coping and adjustment after SCI, and explore the impact of EIVR on the broader rehabilitation program.

Finally, it seemed common in this review for the research about employment after SCI to incorporate single psychological variables such as self-efficacy, motivation, or appraisals, to control for individual differences. Incorporating psychological empowerment in future studies could go further in controlling for psychological differences, given that such a variable would ostensibly measure a range of dimensions of the self.

**Implications for practice**

The evidence for any individual psychological construct is insufficient to recommend their inclusion within early intervention VR programs following spinal cord injury. Taken as a whole, however, the literature base clearly supports the inclusion of empowerment-related variables within the VR space. As some of these constructs are already recognised in established VR practices more generally, their inclusion in VR programs following recent SCI may be supported while the development of a research basis establishing the empowerment model is ongoing. Given the impact of SCI, the variations in how these injuries affect functioning, and the unique psychological profiles of each individual, it is vitally important that interventions are delivered in individualised, person-centred ways, regardless of the constructs being utilised or measured.

**Bolstering self-efficacy**
Self-efficacy may be supported by the rehabilitation counsellor by including self-efficacy raising interventions within early intervention VR programs for this group. Adapting Bandura’s model of self-efficacy, Betz (2007) proposes four essential domains to improving career self-efficacy: facilitating successful accomplishments (mastery experiences); use of role models for vicarious learning; social persuasion and encouragement; and anxiety management techniques. These may be incorporated into an early intervention VR program from the initial interview, during which the vocational assessment allows for the discussion and revisiting of previous professional accomplishments and to identify goals for future mastery experiences (Sullivan & Mahalik, 2000). Social persuasion and support can be gained from the rehabilitation counsellor and peer support, which would also assist with role modelling (vicarious learning). Finally, anxiety management techniques such as role playing job interviews and countering negative self-talk may be built into the VR program (Sullivan & Mahalik, 2000).

Other factors identified that may impact a person’s self-efficacy following SCI, include their perceptions of SCI and disability in general (Fadyl & McPherson, 2010; Kennedy et al., 2010). Participants with a more negative appraisal of disability are potentially more likely to perceive their situation as unmanageable (Kennedy et al., 2010), thus decreasing their self-efficacy. Conversely, participants’ confidence is increased by peer role modelling, which impacts their perception of the capabilities of people with SCI (Fadyl & McPherson, 2010). These findings highlight the value of peer support and education about the injury, particularly as it relates to the employment space.

**Fostering hope**

One of the features of early intervention VR is that it is hope inspiring; participants of such programs have reported that enshrining RTW as a possibility early in rehabilitation gave them hope that recovery was possible (Ramakrishnan et al., 2016). The early provision of
information, linking to resources, and discussion of possibilities serves to reinforce hopefulness in this context (Ramakrishnan et al., 2016). Snyder’s Hope theory (2000) holds that hope is comprised of the ability to devise pathways towards one’s goals (pathways thinking) and the ability to generate energy towards achieving those goals (agency thinking). Thus, establishing meaningful vocational goals and devising clear pathways towards those goals would theoretically enhance a person’s hope post-SCI (Dorsett et al., 2017). Hope may also be supported by holistically considering the person’s situation to identify barriers to hopefulness, which might include chronic pain, financial hardship or lack of access to services (Dorsett et al., 2017). Strategising and advocating to remove or minimise these barriers may also support hope in the VR context.

**Limitations and challenges to synthesis**

Although this review extends previous reviews in the area of employment after SCI, there remain some limitations to the findings. Firstly, the heterogeneity of the studies reviewed limited their aggregated ability to support the constructs examined. The studies were also limited to English language journals accessible through the author’s institutional library database subscription. There were some challenges to quantitative synthesis in this review. Firstly, there were issues with the identification and screening of studies that utilised a ‘new injury’ sample. Reporting of time since injury was often absent or unclear, with some studies reporting both ‘average age at injury’ and ‘average age at study’ without specifying time since injury, or indicating participants were ‘post discharge’. Participants with newly acquired injuries were often aggregated into larger samples ranging one year to decades since injury, potentially disguising the unique needs of this population.

There was significant geographical and demographic heterogeneity present in the studies reviewed; the eight studies investigating the early injury group represented six different countries. These countries potentially have differing political and compensation environments,
different cultural attitudes towards disability and working, different social welfare schemes, and different job markets. Although not all of these factors are different country to country, they impact the extent to which conclusions can be generalised to other contexts, as they may influence a person’s internal psychology in unforeseen ways. For example, cultural variations impact the value placed on work (Schwartz, 1999), general self-efficacy (Scholz, Doña, Sud, & Schwarzer, 2002), the tendency towards optimism (Chang, 1996), and the perceived helpfulness of social support (Taylor, Welch, Kim, & Sherman, 2007).

In addition to the geographical and sampling variability, there were also some methodological inconsistencies, namely in the operationalising of employment success, and in the measurement of the constructs themselves. The majority of studies in the overall review utilised employment rate as the main measure of employment success, usually dichotomising this as ‘employed’ versus ‘unemployed’. It was also reasonably common to group participants into these categories based on a threshold of paid hours worked per week, and to differentiate between full-time and part-time work. There were similar subtle differences in the measures of the constructs themselves; one construct could be measured with many different tools. These methodological variations impacted the extent to which the literature could be aggregated, and the reliability of the conclusions drawn about each construct.

**Conclusion**

Overall, the results of the review indicated that an empowerment VR framework could be useful in early intervention VR following SCI, with the processes underpinning the psychological component of empowerment being empirically supported with this population. More research could establish a comprehensive empowerment model incorporating both intrinsic/individual and extrinsic/environmental components. This could potentially mitigate the risks of early intervention VR and augment the broader rehabilitation program by supporting coping and adjustment to the injury while also working towards vocational goals.
References


3.6 Phase 2 Summary

Phase 1 of the project incorporated background research (Chapter 1, Section 1.3) that highlighted methodological inconsistencies and potentially underserved populations within the research field, and indicated the presence of underpinning mechanisms of EIVR. The conclusions of Phase 1 informed the development of seven research objectives to guide the remainder of the project. Phase 2 was developed to address four of these objectives:

1. Explore what makes a “successful employment” outcome after SCI.
2. Investigate the methods and populations used in the literature about employment after SCI to identify research gaps and inform the development of future research.
3. Explore the concept of occupational bonding within EIVR, and identify ways that this bond may be supported when challenged by SCI.
4. Investigate the role of psychological resources such as hope in EIVR, and identify how EIVR works to support these variables.

These objectives aimed to define what ‘employment’ (and, by extension, RTW) actually means, informed the development of further research in this field, and describe the key mechanisms of EIVR and the literature supporting them. A second broad, systematic literature review was then undertaken to address these objectives, the results of which were presented in a series of publications exploring the research field from a methodological and conceptual standpoint.

Methodologically, the research field about employment after SCI was broad, and largely influenced by the dominant medical paradigm. This was perhaps most evident in the choice of methods used to address the needs of this population, with quantitative methods the most commonly employed. When qualitative methods were used, these tended to lack the strong theoretical foundations that underpin rigorous qualitative research. Regarding measures used, there was consensus that obtaining work to any extent constituted a successful
employment outcome. The extent to which obtaining work actually meets the needs and/or aspirations of people with SCI is questionable, and including broader indicators of quality outcomes (hours worked, income, or job satisfaction) could strengthen our understanding of the extent to which research and services are serving this population’s needs. Demographically, people with newly-acquired SCI have been somewhat under-represented within the literature.

Drawing the methodological, measurement, and demographical aspects of the published research together, it seemed that future investigation should aim to utilise qualitative methods of inquiry to prioritise the consumer’s voice in investigating and evaluating EIVR for people with newly-acquired SCI. Such research would look beyond obtaining paid work to consider the consumers’ continued needs post-placement, and ensure the meaningful assessment of EIVR services by the service users themselves. This directly informed the development of Phase 3 of the project, which aimed to address the aspects nominated above via qualitative inquiry.

The conceptual aspect of Phase 2 aimed to explore the key mechanisms that underpin successful EIVR. The occupational bond was clearly supported by the extent of work-related psychosocial variables present in the literature. It was clear from the review that occupational bonding may go beyond the person’s relationship with their employer, to also encompass their relationship to the world of work itself. This conceptualisation may be useful for providing targets for VR intervention when early RTW is unlikely, as is often the case with SCI. Despite the evidence supporting this construct, and despite its widespread adoption within Workers Compensation policy, there is a stark lack of research directly investigating this bond.

The conceptual review also indicated that psychosocial variables may affect employment outcomes, particularly self-efficacy, motivation and hope. Beyond their relationship to employment outcomes, these factors are useful in the primary rehabilitation setting in promoting coping, adjustment (Dorsett, Geraghty, Sinnott & Acland, 2017; Peter,
Mueller, Cieza & Geyh, 2012) and wellbeing (Brazeau & Davis, 2018; Hampton, 2004) after SCI. The review supported empowerment as a conceptual framework for the psychological variables, incorporating the underpinning constructs of hope, motivation and self-efficacy as well as modification of disempowering contextual elements. Taken together with the occupational bonding model described above, the conceptual component of the Phase 2 literature review informed the development of the Phase 3 research questions, and provided a theoretical lens for higher order analysis of the data.
Chapter 4: Phase 3 Methodology

Phase 3 of this study explored several complex questions about the perspectives and experiences of people with newly acquired spinal cord injuries regarding RTW. Given the descriptive nature of the study, and the tendency for employment to be entangled with layers of meaning and self-identity, and based on the results of the Phase 2 literature review, a qualitative approach was adopted under an interpretative phenomenological framework. This chapter will describe the philosophical underpinnings of this framework, the qualitative approach taken and the specific research design based on these philosophies. Finally, it will conclude with an overview of the analytic method used.

4.1 Research Questions

Emerging research demonstrates that early intervention VR programs have the potential to improve employment outcomes for the ‘new injury’ group (Middleton et al., 2015). However, the holistic experiences of the consumer group in these programs remain largely unarticulated, particularly during the time soon after hospital discharge. Therefore, this research aimed to describe consumers’ thoughts and experiences of decision-making, planning, and RTW during the early stages community reintegration, following participation in an early intervention VR program consistent with the overall research aim:

To explore what the return to work journey is like from the perspective of people with newly-acquired spinal cord injuries, and to describe the influence of EIVR on their journey.

As previously stated, the specific research objectives relating to this aim included:

- Explore how consumers who participated in an EIVR program describe their experiences of planning, seeking and/or returning to work.
- Explore which factors present barriers to job seeking or RTW for people with newly acquired SCI.
• Investigate the VR processes that consumers perceive as most helpful in EIVR following SCI

The research objectives and justification for these were explored in depth in Chapter 1 (Section 1.5).

Phases 1 and 2 of the project (described in Chapters 1-3) shaped the development of the present project in several ways. The initial narrative review (Phase 1) implied a large, disparate field of research spanning multiple disciplines, paradigms and geographical locations (Bloom et al., 2017). Therefore, a systematic, quantitative review method (Phase 2) was employed to more rigorously identify opportunities for further research. The findings of Phases 1 and 2 were twofold: informing the development of the methodology and outlining the common factors of EIVR, or the underpinning mechanisms that promote the success of such programs.

The methods and measures component of the systematic review (see Chapter 2) underscored the need for research investigating the perspectives of people with recently acquired SCI, given that the studies that did include newly injured samples were generally quantitative. These studies also tended to be longitudinal, using follow-up intervals of six months or longer and potentially overlooking the rapid changes that people undergo during rehabilitation and immediately following discharge from hospital. Thus, the results of this component of the review informed the development of the current study’s design, including the use of a qualitative design with an earlier follow-up period. The Phase 2 review also indicated the utility of a number of psychosocial factors in facilitating RTW post-SCI. These factors were broadly conceptualised as the underpinning mechanisms of EIVR, these being preservation of the occupational bond, and the use of an empowerment framework that promotes coping and recovery. These mechanisms formed the conceptual framework of the project, relating to research objectives 3 and 4, restated below.
3. Explore the concept of occupational bonding within EIVR, and identify ways that this bond may be supported when challenged by SCI.

4. Investigate the role of psychological resources such as hope in EIVR, and identify how EIVR works to support these variables.

Thus, Phases 1 and 2 informed the development of the Phase 3 methodology and provided conceptual frameworks for the development of the research questions, interview guide and data analysis. These components identified that EIVR supports an under-served population could potentially maintain connection to work when working is impossible, and could contribute to wellbeing within primary rehabilitation.

To this end, the research questions were:

1. How do people with a newly acquired SCI participating in early intervention VR programs describe their experiences of planning, seeking and/or RTW?
2. Which VR processes do people with newly acquired spinal cord injury perceive as most helpful in early intervention VR following SCI?
3. Which factors promote empowerment in RTW after newly acquired SCI?
   a. Which factors promote or diminish self-efficacy, hope and motivation during the first year after SCI?
   b. Which contextual factors facilitate or prevent job seeking and RTW during the first year after SCI?
4. How does the occupational bond facilitate job seeking and RTW after newly acquired SCI?
   a. How do people in this group describe their attachment to working or the workplace?
   b. What role does work-related social support play in job seeking and RTW after recent SCI?
4.2 Qualitative approach

Qualitative methods are particularly appropriate for rehabilitation due to the complex and socially constructed nature of disability, of which qualitative methods produce correspondingly complex descriptions (Crisp, 2000). For rehabilitation counselling specifically, the concept of working is also laden with meaning and value and is affected substantially by the prevailing socio-economic and political context in which the person works. These social and contextual factors affect the study of disability and work, making them difficult to quantify. Holistic and context-sensitive qualitative approaches are useful in describing unquantifiable aspects of the human experience. Therefore, these methods are a good fit for rehabilitation counselling research (Koch et al., 2014).

In the past, research into early vocational intervention following SCI has predominately used cross-sectional, quantitative, survey-based methods. Although these methods are appropriate for quantifying and rigorously confirming phenomena, they are somewhat reductionist and fail to capture the full human experience of spinal injuries. This has perhaps limited their usefulness in developing innovative interventions and approaches to better support RTW in the SCI population. Therefore, this study used a longitudinal, qualitative design to investigate and explore the experiences of people with recent spinal cord injuries who were engaged in a VR program, and describe how these experiences change over time.

4.3 Qualitative method

The qualitative method adopted for this study was Interpretative Phenomenological Analysis (IPA). This method was chosen due to its focus on the subjective experiences of participants and complex, value-laden phenomena (Smith, Jarman & Osborn, 1999), making it appropriate for addressing the overall research aim of exploring the return to work journey from the perspective of people with newly-acquired spinal cord injuries, and describing the influence of EIVR on their journey. The focus on subjective experiences and the influence of
context mean that IPA is often used within health studies (Reid, Flowers & Larkin, 2005) and recognised for its utility in gaining the perspectives of consumers to evaluate services and interventions (Rose et al., 2019), such as EIVR. Elucidating consumers’ subjective accounts of services and interventions provides arguably more useful information than quantitative research alone (Reid, Flowers & Larkin, 2005). Moreover, medicalised research fields, like SCI, have been heavily influenced by the medical model of disability and associated patriarchal research traditions (Haegele & Hodge, 2016), and dominated by the voice of the ‘expert’. The current study utilised IPA to promote the voice and perspective of the consumer in the development of this emerging field of knowledge.

Comparable qualitative methodologies, such as ethnography, also aim to understand people in their contexts, but were deemed less suitable choices for this project. Given that ethnography incorporates an etic (objective, or outsider) perspective (Hammersley & Atkinson, 2007), there is arguably tension in authenticity and representativeness when researching vulnerable populations (Stevenson, 2010). This is particularly salient when researching with people with disabilities due to the need to preserve and prioritise the experiences, expertise, and empowerment of the consumer, in alignment with contemporary disability rights perspectives (Shakespeare, 2013). While this tension is not insurmountable, it has led to a limited amount of disability ethnography, with autoethnography being seen as potentially more appropriate (Couser, 2005). The question of authenticity was a particular consideration in this study because I, as the researcher, do not have a disability. IPA acknowledges that the researcher’s own (often disparate) experiences are involved in interpretation, and therefore have the potential constraining complete access to participants’ worlds (Smith, 2006). This made IPA an appropriate philosophical fit with the aims of this research. Furthermore, gaining the objective etic perspective within ethnography involves a participatory fieldwork component
that people with newly-acquired SCI might find additionally burdensome during the often challenging community reintegration period, making IPA a more pragmatic approach.

Grounded Theory was also potentially appropriate for the current project because of the exploratory nature of the work; Grounded Theory is commonly used to develop evidence in areas with limited prior research (Strauss & Corbin, 1994). Indeed, researchers are encouraged to avoid hypothesising a priori, enabling theories to emerge from systematic analysis of the data (Strauss & Corbin, 1994). Conversely, IPA allows the use of prior theoretical knowledge to add depth to interpretations (Larkin, Watts & Clifton, 2006). The current study was informed by prior evidence, particularly in analysing the underlying mechanisms of EIVR, making IPA a more suitable framework for this research than grounded theory.

4.3.1 Philosophical assumptions

Epistemology studies theories of knowledge, how knowledge is acquired and the differences between opinion and truth (Della Porta & Keating, 2008). Essentially, it is concerned with what it means to ‘know’ something. Applied to social science research, epistemology refers to what constitutes scientific knowledge and conceptualises the approaches by which this knowledge is gained (the ‘epistemological stance’) (Hinchey, 2010). Two major epistemological stances dominate research in the psychology and social sciences fields: positivism and interpretivism (Egbert & Sanden, 2014). These stances differ in their conceptualisation of the nature of knowledge, the knowledge considered valuable or reliable, and the best methods to gain knowledge. They are also underpinned by differing ontologies, or understandings of what constitutes reality.

The positivist epistemology argues that knowledge exists independently of the researcher and is concerned with the objective description of this knowledge (Merriam, 2009; Tuli, 2010). It assumes an objectivist ontology—that there is a concrete, unchanging reality that can be understood through scientific inquiry (Egbert & Sanden, 2014). Positivism yields
reliable, repeatable conclusions; therefore, it has contributed immensely to the development of the natural sciences, and subsequently been adopted in psychology and other social sciences. In recent decades, however, the positivist worldview in the social sciences has been challenged, with opponents arguing that knowledge about the human experience is fundamentally different to that of the natural sciences because of the complex cognitive, emotional and social factors that comprise the ‘human experience’ (Tuli, 2010). Accepting this fundamental difference calls for the inclusion of other research paradigms to address the complexity of research about the human experience. This concern has led to a softening of the positivist epistemological stance in this area. However, it continues to dominate the published research across most social science disciplines as noted in the literature reviews presented in Chapters 1-3.

In contrast to the positivist worldview is the interpretivist or constructivist epistemology, which is less concerned with the nature of reality itself, instead emphasising how knowledge about reality is created (Merriam, 2009; Schwandt, 1994). Proponents argue that regardless of whether there is one shared reality, knowledge about reality cannot be objectively described; it is created through social constructions such as language (Della Porta & Keating, 2008). Therefore, the researcher, research participants and contexts that influence these and the knowledge created are said to be interrelated (Schwandt, 1994). Proponents contend that this approach is more appropriate for social sciences research given the complexity of humans; many psychological and social constructs are difficult to fully quantify, rendering positivist methods reductionist in comparison.

These two epistemological stances approach research problems in fundamentally different ways. Typically utilising a deductive approach, positivist research uses quantifiable observations to test hypotheses to explain and predict specific phenomena (Silverman, 2017). Interpretivist research, however, uses inductive approaches to build theories from the ‘bottom up’, forming theories through engagement with the data with the key aim of interpretation and
understanding (Della Porta & Keating, 2008; Schwandt, 1994). The lack of a priori hypothesising means that interpretivist methods are arguably more useful for investigating a person or group’s perceptions of a given event or experience than positivist methods because they prioritise the descriptions of the participants and minimise the voice of the researcher in collecting the data (Merriam, 2009). These aspects made an interpretivist design most appropriate for the addressing the research questions, given that these questions are concerned with the participants’ perceptions of returning to work after SCI. Research traditions developed around this focus on the subjective experiences of participants, most notably the philosophy of phenomenology.

Phenomenology is a philosophy and research approach that is primarily concerned with exploring participants’ perceptions of life experiences. It is essentially person-centred; its focus is the experience of the individual, without identifying causal explanations (Matua & Van Der Wal, 2015). There are two major schools of phenomenological thought: descriptive phenomenology and interpretative phenomenology (Matua & Van Der Wal, 2015). Based on the works of Husserl, descriptive phenomenology is primarily concerned with the ‘pure’ description of the nature of the phenomenon in question. The development of this approach was heavily influenced by the dominating positivist paradigm in that descriptive phenomenology aims to neutralise researcher bias, striving for ‘transcendental objectivity’, producing results untainted by the researcher’s knowledge, assumptions and preconceptions (Dowling, 2007; Lopez & Willis, 2004; Tuohy, Cooney, Dowling, Murphy & Sixsmith, 2013). This is achieved by reflecting upon these biases and ‘bracketing’ them, or setting them aside (Bowie & Wojnar, 2015; Crotty, 1996). This approach assumes an objectivist ontology; the main goal of research is to unveil the underlying ‘essences’ of a given phenomenon, which everyone who experiences the phenomenon are believed to share (Bowie & Wojnar, 2015).
This means that descriptive phenomenology is suitable for research that asks ‘What is it like to experience this event?’.

In contrast, interpretive phenomenology aims to delve beyond pure description to search for the underlying meanings of experiences. Proponents of this approach argue that it is impossible to access pure knowledge about a given phenomenon, as it is filtered through the biases and assumptions of the source, thus requiring a level of interpretation (Sharkey, 2001). This approach resonates with constructivist and interpretivist thinking in that it conceptualises a person’s subjective experiences within their social, historical and political contexts—known as the ‘lifeworld’—with which the person is inextricably linked (Lopez & Willis, 2004). The researcher is also influenced by their own contextual factors, biases, assumptions and professional knowledge. Rather than bracketing these away, the interpretive approach argues that these have value and should be explicitly integrated within data analysis. In this way, knowledge is said to be co-constructed between the researcher and participant. The primary aim of interpretive phenomenological research is to understand the impact of the context on the person’s choices, and how the context affects the convergences and divergences within participants’ data, to access the underlying reasons and meaning behind the phenomenon in question (Crotty, 1996).

4.3.2 Methodological framework

Although both phenomenological approaches have value in social sciences research, the rise in humanistic and hermeneutic thinking has resulted in the increased prominence of interpretive phenomenology. One of the most influential research frameworks to arise from the interpretive paradigm is Interpretative Phenomenological Analysis (IPA). Originating from the health psychology field, the approach aims to describe in detail a specific group, phenomenon or experience, and explore how participants make sense of their experiences (Smith, Jarman & Osborn, 1999). The IPA framework is based on three underpinning philosophies: hermeneutics,
phenomenology and idiography (Smith, 1996; Smith et al., 1999). Proponents explain that IPA is phenomenological in that it aims to explore participants’ stories in their own words, following this story in whichever direction the participant deems important or relevant (Cassidy, Reynolds, Naylor & De Souza, 2011; Smith, 1996). A focus on the person’s subjective lived experiences means that IPA is suitable for studies that seek to learn how participants describe their experiences of a given phenomenon, such as the present study.

Hermeneutics is the process of interpretation, or ‘meaning making’, and is engaged in when collecting and analysing qualitative data. There are two levels of interpretation involved in IPA: the participant interpreting and communicating their experiences, and the researcher making sense of this information via analysis (Smith, 2011). Thus, IPA researchers do not aim to achieve a perfect, objective description of the person’s experiences, but rather the version of the phenomenon as the participant has reported experiencing it, and as interpreted by the researcher themselves (Cassidy et al., 2011). This is called a ‘double hermeneutic’ process and is influenced by both the participant’s and researcher’s experiences, beliefs and worldviews (Smith, 2011). Awareness of these factors requires researchers to reflect upon and interrogate the contextual influences, beliefs and attitudes that affect their interpretation of participants’ data. This critical self-reflection makes IPA useful for complex or value-laden issues, such as people’s experiences of work-related injuries, disability and unemployment.

Finally, IPA is also underpinned by idiography, or the in-depth study of specific experiences and the contexts in which these occur (Cassidy et al., 2011). IPA is idiographic in that it is concerned with a detailed, in-depth exploration of the case in question. The level of detail required usually results in the use of case studies of smaller samples, often between six and eight participants (Eatough & Smith, 2008). This number of participants provides enough opportunity for deep inquiry and cross-validation of the themes identified, while remaining logistically workable. The ability to mine smaller samples for rich data makes IPA ideal for
areas of investigation with a smaller participant pool or those that might benefit from a deeper exploration of the problem.

4.4 Reflexivity

Central to a qualitative approach is consideration for reflexivity, or the awareness given to the impact of the researcher on all aspects of data collection, analysis and reporting. As mentioned in the discussion of constructivism (see Section 4.3.1), qualitative approaches generally hold that knowledge is co-constructed by participants and researchers. This construction cannot be separated from the worldview of the researcher – the researcher’s experiences, beliefs, attitudes and values influence the conceptualisation, undertaking, and reporting of research (Larkin, Watts & Clifton, 2006). Therefore, the researcher’s own assumptions, biases and professional approach should be made explicit and considered when analysing the data. Creswell (2018) encourages a pragmatic approach to reflexivity, advocating discussion of the researcher’s assumptions and biases as they pertain to the phenomenon of interest. Similarly, Altheide and Johnson (2011) recommend reflecting on and disclosing issues relevant to data collection and analysis. This positional reflexivity is intended to identify and interrogate “unseen, privileged, or, worse, exploitative relationships between analyst and the world” (Macbeth, 2001, p. 38). Relevant factors may include gender, age, race, sexuality, experiences (particularly with the topic of study), theoretical and ideological stances (Berger, 2015). I would therefore like to disclose that I am a white, straight, non-disabled woman with limited personal experience of disability. Having limited practice experience as a rehabilitation counsellor (RC), no practice experience with people with SCI, and no experience of disability, I came to this topic ‘naïve’ to the challenges experienced by my participants. This naivety can be helpful; participants were truly experts, and I the novice, in alignment with the philosophical underpinnings of IPA. There were also potential pitfalls associated with this lack of experience, particularly relating to authenticity and the potential to miss important cues when coding the
data (Berger, 2015). I made efforts to overcome these issues through use of consultation and supervision with experienced practitioners in the field.

My worldview was shaped primarily by my educational experiences in psychology and rehabilitation counselling (RC). These two professions have somewhat conflicting ways of viewing individual differences, with psychology heavily influenced by the medical model and thus adopting a pathologising stance of normal versus abnormal, adaptive versus maladaptive (Elkins, 2009), and this influenced my worldview considerably. Conversely, RC’s origins in navigating the complex traumas of combat veterans post-WWII necessitated a collaborative, multidisciplinary approach that has resulted in rehabilitation counselling being influenced by a variety of professional traditions (Shaw & Mascari, 2017). Humanistic values, and the influences of social psychology and the disability rights movement have instilled a consumer-driven, person-centred philosophy in rehabilitation counselling wherein the main objectives are to maximise inclusion, advocate for vulnerable people and facilitate independence (McCarthy, 2017). Coming into rehabilitation counselling, I was confronted by the use of the social model of disability, and the pragmatic approach of conceptualising differences (i.e. disability) as a barrier (or series of barriers) to be overcome by modifying the environment (Haegele & Hodge 2016). I continue to struggle to let go of pathologising language, a struggle that is echoed in the SCI research itself. Awareness of this bias was important in data analysis, in avoiding framing SCI as a catastrophic loss. This is an aspect of my work that is continually challenged by my supervisors, and I made every effort to interrogate this aspect of myself during data collection, analysis and interpretation.

I have also identified important biases that originate from the RC paradigm itself. Rehabilitation counselling shares values with other counselling professions: the adoption of a wellness perspective, consideration of lifespan development, prioritisation of prevention and early intervention, and client empowerment (Shaw & Mascari, 2017). These values,
particularly the latter two, have clearly influenced the development of this research. Additionally, the centrality of paid work as the ultimate goal of vocational rehabilitation. Work is viewed by RCs as both a precursor to and expression of independence, return to ‘purposeful activity’ as both a treatment and a goal (Strauser, Tansey & O’Sullivan, 2015). This is something I strongly believe.

Having summarised the methodology, associated underpinning philosophies, and personal perspectives relevant to the research, the next component of this chapter describes the specific methods used to implement the research and address the research questions.

4.5 Research Design

4.5.1 The research context

The Back2Work (B2W) program is a VR program piloting an EIVR approach, integrated within the Spinal Injuries Unit at The Princess Alexandra Hospital, Brisbane, Australia. The RCs involved in the B2W program aim to make contact with the person during initial rehabilitation, usually within four to six weeks of the injury. The RCs then work with clients to support career decision-making, explore options, develop job seeking skills, work through logistical issues associated with working, liaise with employers, and identify and source appropriate assistive technology. This work is undertaken within the Spinal Injuries Unit while the person is undertaking their general rehabilitation program. After discharge, clients are retained on file for three months and connected with community-based services as needed. In total, the B2W practitioners work with clients for an average of 9-12 months, factoring in the support delivered in both the inpatient and outpatient settings.

4.5.2 Design

The project was prospective and longitudinal in design. Participants’ experiences, attitudes and beliefs regarding their return-to-work journeys were explored at three time points:
soon after discharge from hospital, three months after the first interview and six months after
the first interview.

Discharge was chosen as the initial time point due to the important shifts that occur
during this time—the person moving from a supportive and accessible space to potentially less
supportive and less-accessible spaces. The subsequent time intervals were chosen to capture
developments in the return-to-work process while also respecting the continuous and often
intense physical rehabilitation undertaken by participants at this time.

4.6 Participants and Recruitment

4.6.1.1 Inclusion and exclusion criteria

The primary inclusion criterion was a recent SCI, sustained less than 12 months prior,
to address the research gap identified in Phase 2 relating to a limited amount of research with
participants less than two years post-injury. The Back2Work EIVR program’s post-discharge
follow-up (and therefore participant contact) is formally limited to three months. Combined
with average length of hospital stays of up to nine months (Tovell, 2020), recruiting within the
first 12 months post discharge was thought to be sufficient to address the research aims. Efforts
were made to recruit participants soon after discharge to explore RTW during initial
community reintegration. However, recruitment difficulties meant that inclusion parameters
were expanded to include two participants injured within the prior 18 months. While this is not
entirely desirable, it still helped to address the previously identified research gap. It did
however increase the risk of recruiting participants who had already overcome the challenges
associated with community reintegration post-discharge. This risk was mitigated by the
recruitment of a diverse range of participants, whose diverging experiences of SCI ultimately
enriched the data.

IPA is typically conducted with small samples in order to facilitate deep analysis (Smith
& Osborn 2004). Trends in recent years gravitate towards fewer participants, with proponents
recommending samples of three to six participants (Smith & Osborn, 2004). Initially, the recruitment goal was approximately eight to 10 participants in order to capture diverse RTW trajectories and experiences. Slow recruitment meant that, at the end of the data collection period, seven participants with SCIs sustained within the prior 18 months or less and who had participated in the B2W early intervention VR program were recruited for the study. This was sufficient to address the research aims, particularly since participants were interviewed more than once, which aligns with recommendations for idiographic inquiry such as IPA (Smith & Osborn, 2004).

Participants were working age, between the ages of 18 and 65 years. People with non-traumatic injuries were excluded due to the differing impact of these injuries on a person’s employment situation; the progressive nature of non-traumatic injuries may result in different employment, medical and rehabilitation trajectories than those of traumatic SCI. For the purposes of undertaking the interviews, participants were required to have a conversational level of English and be available for follow-up across all three data collection points.

4.6.1.2 Recruitment

Participants were approached in two ways: through the B2W program RC, or by researchers involved in evaluating the program. A set of talking points was developed to assist in the recruitment, and participants were also given the recruitment flyer (see Appendix 8) and participant information sheet (Appendix 9), and asked if they consented to be contacted by the researcher. Once consent was given, the person’s first name and telephone number were given to the researcher, who telephoned the participants to provide additional information, answer questions and make an appointment for the first interview. Recruitment typically occurred at the final B2W appointment before discharge from hospital, although recruitment difficulties meant that three participants had discharged some time prior to the first interview. The longest period between discharge and the first interview was approximately five months.
4.6.1.3 Non-participants

Recruitment was more challenging than anticipated. The most common reasons for refusal to participate included a lack of interest or the time commitment involved in participating. As SCI is a low-prevalence condition, people with SCI are frequently accessed for research; thus, the additional burden of participating in this study likely led to refusals to participate. Additionally, re-establishing themselves within the community setting requires significant adjustment (Dickson, Ward, O’Brien, Allan & O’Carroll, 2011) that potentially precludes research participation. Psychological trauma is also a feature of some traumatic injuries (Pollock, Dorstyn, Butt & Prentice, 2017), and one non-participant did indicate that discussion of their injury could exacerbate their psychological distress.

4.7 Ethics

4.7.1 Approval

This study was approved by the Griffith University Human Research Ethics Committee (GUHREC approval number 2017/189). The research adhered strictly to the National Statement on Ethical Conduct in Human Research (National Health and Medical Research Council, 2018), upon which the GUHREC approval was based.

4.7.2 Ethical considerations

This was considered low-risk research. The primary risk was the potential for discussion of the injury and associated issues to cause emotional distress. Participants were made aware of this risk during recruitment, and one potential participant declined on the basis of potential emotional distress. To mitigate this risk, participants were informed of available counselling services, and it was also reaffirmed that they could withdraw at any stage. The researcher utilised her skills as a qualified RC to ensure rapport building and sensitivity to participants’ needs. The researcher also engaged in informal reflection and debriefing with
supervisors to continuously improve interview skills and enhance engagement with participants. No participants reported emotional distress as a result of this research.

4.7.3 Compensation

A variation to the ethical approval of the research was sought to provide shopping gift cards to compensate participants for their time and inconvenience. This amendment was sought to address difficulty in recruiting participants, which was potentially due to the moderate time commitment of the study: three telephone interviews of approximately 30–45 minutes’ duration. There was a risk that this may unduly incentivise participants to participate. The low risk of the study, however, minimised this concern. The amount of $50 was deemed enough without being overly generous, further minimising the risk of undue inducement to participate. To further mitigate the risk of coercion, receiving the gift card was not contingent upon completing all interviews.

4.7.4 Confidentiality

Efforts were made to protect the identity of participants and ensure the confidentiality of data. Data were kept in re-identifiable format using a code comprising the participant’s initials and the date of the interview so that the three time points could be connected. Interview recordings and transcripts were stored on a password-protected computer kept in a lockable room, and backups kept on an encrypted USB device in accordance with Griffith University data storage protocols and the ethical approval of the study.

4.7.5 Informed consent

Participants were informed about the study at every step of recruitment and at the beginning of each interview. Participant information sheets were provided to prospective participants in person or via email prior to their participation in the study. Consent to conduct and record the interview was obtained immediately prior to the first interview. The informed consent procedure (see Appendix 10) was read to the participant and their answer recorded. A
brief review of the interview procedure and purpose was conducted at the beginning of each interview, during which participants were reminded of their right to withdraw at any time without penalty.

4.7.6 Researcher Relationship with participants

I had no professional or personal contact with participants prior to the conduct of this research, or during data collection. I was only identified to participants as a researcher – my identity as a rehabilitation counsellor was not disclosed, to avoid the potentially unfavourable power dynamic associated with identifying myself as a rehabilitation professional.

4.8 Data Collection

4.8.1 The interview guide

Semi-structured interviews are used in qualitative research to ensure that the phenomenon under study is explored comprehensively, as these interviews provide rich data on phenomena which cannot otherwise be observed, including a person’s thoughts, feelings and motivations (Tracey, 2012). Participants in semi-structured interviews are able to express their views in their own words while remaining grounded on the topic (Serry & Liamputtong, 2017). Thus, the study utilised semi-structured interviews, adhering loosely to an interview guide with room to further explore pertinent or unexpected responses.

Appendix 11 contains the interview guide used in the study. Interviews began with demographic questions to contextualise participants’ subsequent responses. These included age, gender, injury level, education level, pre-injury occupation and employment status, and current employment status. Then followed a brief timeline of the person’s VR efforts thus far, which allowed the researcher to tailor the remaining questions to the participant’s unique employment situation.

The rest of the interview was roughly split into four parts: the career journey from the injury until now, the career journey as it currently stands and consideration of the future and
the career journey overall. In line with the research questions, interview questions aimed to identify the person’s RTW readiness and activities, exploring barriers to RTW, describing supports in the RTW journey, gauging the person’s intrinsic sense of self-efficacy and exploring the meaning or benefits of working after SCI for each participant. Questions were mostly open-ended to encourage full answers in participants’ own words. Probing questions were used to encourage expansion on previous responses.

4.8.2 Amendments

The interview guide functioned well for most participants, who were either employed or seeking work. The guide’s questions were developed based on the assumption that the participant would be seeking work; however, this was incorrect for one participant. Therefore, the guide was amended for Participant 6, who was not employed and not seeking work at the time of the first interview. These amendments included the use of hypothetical questions to elicit thoughts barriers and facilitators to RTW anticipated in the future.

The interview guide was also changed to clarify items exploring the occupational bond. Participants indicated that the initial wording of being ‘attached to’ or ‘bonded to’ working was confusing. Questioning about the occupational bond was revised after the fourth interview conducted. The revised question focused on the degree to which participants felt closer to or further away from working, and seemed to make more sense to participants. This revision expanded the data that participants were able to give about the salience of work in their lives, enabling discussions about the factors that move work closer or further away, and whether work felt further away than it did prior to the injury. The impact of the prior unclear wording on data collection and analysis was minimal, given that the revision occurred reasonably early in data collection and the conducting of repeated interviews meant that participants had multiple opportunities to contribute data about this item.
4.9 Data Analysis

4.9.1 Dataset

Five participants provided a complete set of data across all three time points. One participant was lost to follow-up after the first interview. One participant was considered lost to follow-up and then regained. This participant had acute health concerns for which he was admitted to hospital during the data collection period. He made contact after discharge and was able to complete a second and final interview. This meant that the final dataset for analysis comprised 18 interviews.

The data were collected via telephone interviews, which were audio recorded and transcribed. Each interview adhered to the interview guide, with prompts to fully explore the participants’ experiences. Additional time in the second and third interviews was dedicated to confirming the accuracy of the previous interview transcript. The first interviews were transcribed by the researcher to assist in immersion in the data, and the remaining interviews were transcribed by a professional transcription service. Thus, the data took the form of verbatim transcripts of the interviews conducted.

4.9.2 Analysis

IPA was used in data coding and analysis. This occurred in several broad phases, including immersion within the data, sorting the data into themes (coding), clustering themes to identify areas of divergence and convergence, and collating these into superordinate themes and subthemes (Smith et al., 1999). NVivo data analysis software (QSR International, 2018) was used to enhance the manageability of coding the data and support rigorous analysis.

4.9.2.1 Immersion and first-order coding

This stage involved multiple readings of the interview transcripts to immerse the researcher in the data (Pietkiewicz & Smith, 2014). The researcher annotated the transcripts during these readings, noting the important ideas. This first-order coding was broadly
descriptive, focusing on the content of participants’ accounts and attempting to understand events from the participants’ unique perspectives (Larkin, Watts & Clifton, 2006). Coding at this stage noted the aspects of participants’ accounts that were clearly most important to them (‘objects of concern’) and identified ‘experiential claims’, or the indicators of the potential meanings that participants give these (Larkin & Thompson, 2011). Initial themes were identified using repeated words or phrases (‘open coding’) and verbatim quotes (‘in vivo coding’; Thomas, 2006).

4.9.2.2 Second-order coding and generating themes

Second-order analysis involves moving from pure description towards interpretation and making meaning from the data (Miller, Chan & Farmer, 2018). Additional codes were generated by reflecting on participants’ emotions, areas of difficulty in the conversations and by viewing participants’ accounts through the conceptual frameworks developed in Phase 2 relating to occupational bonding and empowerment. These codes were clustered with the previously generated first-order codes to produce emergent themes (Larkin & Thompson, 2011).

4.9.2.3 Clustering of themes

The next phase of IPA involves clustering themes to identify relationships between the emergent codes/themes described in the steps above (Smith & Osborn, 2004). This included identifying areas of convergence and divergence, and changes over time and between participants (Pietkiewicz & Smith, 2014), which became superordinate themes (Larkin & Thompson, 2011). These superordinate themes were clustered according to the research questions.

4.9.2.4 Reporting

Themes were clustered and reported in alignment with the research questions, with exemplar quotes for each aspect of a reported theme. Interview times were reported according
to the longitudinal timepoint at which the interview was conducted – T1 for the first timepoint, T2 for the second and T3 for the third.

4.10 Trustworthiness

Trustworthiness within qualitative research is reinforced through credibility and dependability. At the most basic level, credibility is addressed within qualitative analysis with the inclusion of raw data to support the findings (Ballinger, 2006). The present study used a wide range of informants varying in education level, injury severity and pre-injury employment industry. Further, it used member validation to ensure credibility (Ballinger, 2006), checking in with participants at the beginning of each interview with a brief discussion of the prior interview, and by giving participants transcripts of their interviews after their final interview was completed. Finally, peer checking enabled the researcher to check interpretations throughout data collection and analysis (Ballinger, 2006; Finlay, 2006). This was achieved in consultation with my supervisors (PD and VM) in a series of meetings. Discussing our differing perspectives challenged my interpretations of the data, particularly those that were influenced by my lack of clinical experience with people with SCI.

Dependability is the extent to which findings are transparent and replicable. The dependability of a qualitative study can be reinforced through the use of an audit trail or a detailed chronology of the processes of data collection and analysis (Koch, 2006). In the current study, the audit trail consisted of the development of a codebook with major themes and exemplar quotes, and the use of reflective memos during data collection and analysis.

4.11 Chapter Summary

This chapter summarised and justified the methodological approach taken, its philosophical underpinnings and the specific research design used (or ‘methods’). For the current study, the methodology was informed by interpretivist philosophies. The IPA framework was applied in order to collect and describe the thoughts, experiences and
underlying meanings of RTW processes after newly acquired SCI, with a longitudinal case study design enabling comparisons of emergent themes between cases and over time.
Chapter 5: Findings

5.1 Chapter structure

Initial data analysis revealed a complex map of themes and subthemes, reflecting the complexity of VR and RTW after SCI. These themes were grouped into clusters that were informed by the research questions, such that the findings are presented according to the four research questions:

1. How do people with a newly acquired SCI participating in early intervention VR programs describe their experiences of planning, seeking and/or RTW?

2. Which VR processes do people with newly acquired SCI perceive as most helpful in early intervention VR following SCI?

3. Which factors promote empowerment in RTW after newly acquired SCI?
   a. Which factors promote or diminish self-efficacy, hope and motivation during the first year after SCI?
   b. Which contextual factors facilitate or prevent job seeking and RTW during the first year after SCI?

4. How does the occupational bond facilitate job seeking and RTW after newly acquired SCI?
   a. How do people in this group describe their attachment to working or the workplace?
   b. What role does work-related social support play in job seeking and RTW after recent SCI?
5.2 Participants

The seven participants comprised five men and two women, aged 29–58 years. Six of the seven of the participants reported working prior to the injury, with five of those six working full time. Four participants had paraplegia, and three had tetraplegia level injuries. Table 1 outlines the personal and professional contexts of the participants.

Table 1

Participant characteristics

<table>
<thead>
<tr>
<th>Participant number</th>
<th>Age and gender</th>
<th>Injury level</th>
<th>Time since injury at T1</th>
<th>When RTW</th>
<th>Timepoints completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Male, 43</td>
<td>L2–3</td>
<td>15 months</td>
<td>6 months post-injury</td>
<td>T1, T2, T3</td>
</tr>
<tr>
<td>2</td>
<td>Male, 58</td>
<td>T12 &amp; L1</td>
<td>15 months</td>
<td>T1, T2, T3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Female, 29</td>
<td>T12</td>
<td>7.5 months</td>
<td>T1, T2, T3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Male, 42</td>
<td>C3</td>
<td>11 months</td>
<td>T1, T2, T3</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Male, 28</td>
<td>T10</td>
<td>2 months</td>
<td>T1, T2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Female, 46</td>
<td>C6</td>
<td>11 months</td>
<td>T1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Male, 58</td>
<td>C2</td>
<td>6 months</td>
<td>6 months post-injury</td>
<td>T1, T2, T3</td>
</tr>
</tbody>
</table>

5.3 Research Question 1

How do people with a newly acquired SCI participating in VR describe their experiences of planning, seeking and/or RTW?

Participants fell into one of two potential RTW pathways: returning to their previous role and employer soon after discharge (‘fast track’), or embarking on a longer and more complicated job seeking process. Subthemes and nodes relating to this theme are presented in Table 2.
<table>
<thead>
<tr>
<th>Research question</th>
<th>Themes</th>
<th>Nodes</th>
<th>Collated initial coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>Readiness</td>
<td>Not ready</td>
<td>Need for adjustment period</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Readiness linked to physical recovery</td>
<td>Goals changed in response to adjustment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adjustment</td>
<td>Coming to terms with the injury</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Grieving the old life</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mourning to optimism</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Community reintegration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Feeling on top of things</td>
</tr>
<tr>
<td></td>
<td>Feeling confident</td>
<td></td>
<td>Manageable tasks</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Scaled down tasks</td>
</tr>
<tr>
<td></td>
<td>Confidence</td>
<td></td>
<td>Feels confident about RTW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low confidence</td>
<td>Low confidence in skills &amp; qualifications</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lack of control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not confident about ambulating to and fro</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Setting goals</td>
<td>Usefulness of goal setting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ST goals for LT gains</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Feeling need for guidance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reflective of cons of prior career trajectory</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Prior work situation not ideal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vocational Counselling</td>
<td>Determined to find something that I was passionate about</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possibilities</td>
<td>Overwhelmed by possibilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Overwhelmed by logistics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Feeling that work was far away</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time stealing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Back at work</td>
<td>Balancing lots of things</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Out of the loop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Future orientation</td>
<td>Preference for flexible work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Optimism</td>
<td>About fulfilling the plan</td>
</tr>
</tbody>
</table>
5.3.1 ‘Fast-track’ participants

Of the seven participants, two had returned to work at the time of the study; these two were identified as on the ‘fast track’. These two participants had both returned to their pre-injury role and employer, and shared many similarities, including incomplete injuries, sedentary pre-injury jobs, supportive employers, high pre-injury education levels, managerial roles and long work histories. Both used a wheelchair in the workplace and had similar physical rehabilitation trajectories.
5.3.1.1 Preparing for RTW.

Both ‘fast-track’ participants reported that work became a priority for them early in their primary rehabilitation programs, underscoring the importance of work in their lives and driving motivation to pursue work-related goals. Participant 1 captured the anticipation of work that both ‘fast-track’ participants expressed:

*I was keen to get back to work. It was just working out how I would get back to work and when I would get released from hospital. (T1)*

RTW was also an important goal for Participant 7:

*In my first GPM—general planning meeting [in hospital]—one of my goals was to get to a course in Croatia in October so it [work] was in the back of my mind. (T1)*

Readiness to engage with VR services was related to physical recovery, which promoted feelings of self-efficacy. For example, as P7 began to gain confidence in his wheelchair skills, he became more confident in his capacity to return to work, making the timing of EIVR services serendipitous.

*I was starting to improve at that stage. I could get around in a wheelchair, I could see ... I mean, physically I could go to work soon. (T1)*

The EIVR practitioners facilitated contact with participants’ workplaces prior to discharge. Participant 1 reported that he had been connected with a RTW coordinator at his workplace and was in contact with his supervisor at this early stage, while Participant 7 had visited the workplace accompanied by the EIVR practitioner. These early contacts with the workplace helped maintain the connection between participant and employer, and promoted the ongoing positive relationships that were characteristic of these participants’ RTW journeys:

*Obviously work was very supportive. I got matched up with an officer who looks after RTW, and management was very supportive as well. (P1, T1)*
EIVR facilitated this contact in two key ways—first, by liaising directly with the employer to ensure appropriate accommodations, as was the case for Participant 7:

_They're organising meetings, organising, you know, doing the reviews of the workplace._ (T1)

EIVR practitioners also assisted participants in clarifying their thoughts for future meetings with their employer:

_We actually planned out how I would see my return to work, and how I would interact at work so I tried to visualise in my mind how it would work at work and from there we identified where we potentially had some issues that we would have to address and then from there I was actually able to have that conversation with work at the end of last year, which made it a smoother transition back in._ (P1, T2)

Pre-discharge support needs primarily related to a sense of uncertainty about physical recovery and about the logistics of attending work. Participant 1 summarised these concerns:

_Thinking about how I would actually function in the workplace, how I would actually get to work, how I’d get around work and where all the various facilities are and how I would access my work area ... And then seeing how I would go with fitting in, getting back to work, continuing to do rehab, how tired I would be._ (T1)

Participant 7’s concerns were related to fulfilment of the work role:

_So, the main difficulty I could see would be writing and typing at a computer because my fingers are not fully recovered obviously. The main concern was, you know, my capability that I have behind the computer and writing._ (T1)

However, many of these concerns were eased by visiting the worksite. Participant 7 described how a workplace meeting with his supervisor, the EIVR practitioner and himself renewed his confidence in mobilising around the workplace:
We did a visit ... and I wheeled around in the office and I could see that this is going to be not very difficult at all ... I could wheel around the office, I could get coffee, I can get my lunch so [that] meeting just really settled any uncertainties I had so I’m quite confident that I could go back to work. (T1)

Both participants indicated optimism about work prior to discharge; this optimism was underpinned by good planning:

[I felt] positive ... we’ve got a really good rehabilitation program and return-to-work program, and I had the support of management as well, so I felt confident about that. (P1, T1)

For these ‘fast-track’ participants, the key tasks of the pre-discharge stage were maintaining contact with the workplace and addressing the new logistics involved in working. The RC facilitated this contact and enabled well-informed planning. This assistance, combined with progress through the physical rehabilitation program, promoted self-efficacy and a sense of forward momentum in these participants’ RTW.

5.3.1.2 RTW.

Both P1 and P7 transitioned back into work on a graded basis, allowing for ongoing physical rehabilitation and gradual re-acclimation to working:

I’m feeling comfortable that I could go back, provided I’m realistic in the number of hours I do and provided it’s staggered and slightly increasing over time and making sure it doesn’t interfere with my other therapy. (P7, T1)

Participant 7 anticipated a need for adjustment when reintegrating into the workplace:

Once I get my routines—I don’t know how it’s going to happen but once that falls into place, I think it’ll all be good. (T1)

This concern about readjustment was echoed by Participant 1. This adjustment included rebuilding work habits and routines and reorienting to new developments in the workplace:
I think what I’ve found was the first couple of months was getting back to the routine of work and getting up to speed because I’d been away for a fair while. (T1)

Reduced hours were supplemented by flexible working arrangements, although participants were reflective of the downsides of working from home. Alongside more comprehensively equipped workstations, being in the office appealed to participants because of the social aspect of work. Seeing their co-workers in person allowed participants to feel more connected, more abreast of happenings in the workplace, and less isolated, than if they worked from home:

*Just for contact with people and keeping up with, I guess, what’s going on. And keeping across what’s going on. Probably got more work done from home [laughs], but I think it’s more beneficial to be in the office. Because then you can catch up with people and follow up on things and you’re kept in the loop what’s happening.* (P1, T1)

The lack of workplace and social contact was particularly distressing for Participant 1, who found that he was ‘out of sight, out of mind’ when working from home, and therefore, not informed about ongoing workplace issues:

*If you’re not there it’s sort of like, out of sight out of mind, so that was a bit like ‘ok what’s going on here?’ And that’s what prompted me to spend the second day there as well.* (T1)

Both participants reported working through these issues to achieve a relatively settled return to work. Describing their journey so far, participants reported that they gained satisfaction from work and the balance it brought to their life. This satisfaction underscored the importance of work for psychological wellbeing, particularly during ongoing physical rehabilitation:
I’m only doing half a day and then I go home and I do some exercises and I have a bit of a rest. I’m happy that I’m at the current level, I’m managing that successfully. (P7, T2)

5.3.1.3 Sustaining work.

Staying at work and increasing hours over time was the short-term goal of both employed participants, and both successfully maintained their hours from T1 to T3. However, Participant 1 experienced new physical gains that seemed to slow his graded RTW. There was a palpable shift in his priorities from T1 to T3:

[At] some stage in the New Year, I’d be looking to get back full time, so at the moment it’s balancing, I’ve got an active rehabilitation program as well. That’ll probably transition to less rehabilitation in the New Year. But the intent is I want to get back full time in the role at some stage next year. (T1)

At the first interview, this participant was fully focused on returning to full-time work. However, as observed in the quotation below, his focus shifted from full-time work to a greater focus on physical rehabilitation to maximise his physical gains at T3:

[I have a] a very short-term focus. Obviously my primary goal is around my rehab, and we’ve set fairly short-term goals as we’re progressing along there. (P1, T3)

Likewise, Participant 7 stressed that physical rehabilitation remained the ‘number one priority’, due to the overall improvement in quality of life that physical gains brought:

I’m pretty keen to … on my rehabilitation and it takes a large amount of time … the further I get with that the easier it will make my whole life, so I need to ensure that I allow sufficient time for my rehab. (T1)

Despite the clear benefits, physical rehabilitation also limited the hours available for paid employment. Both participants reported being time-poor and having to balance work and
the rehabilitation program. This balancing act was the key obstacle to increasing hours during the graded RTW program:

I’m probably not going to try and increase my three half days [at work], because at the moment I get to the gym Tuesdays and probably Saturdays and then I do rehabilitation on Thursday, so that means I’m doing six short days. That’s kind of busy. (P7, T2)

Despite their determination to return to work, these participants maintained their commitment to physical rehabilitation, aware of the improvements to both overall quality of life and their ability to work. Although this diminished their ability to increase their work hours in the short term, they viewed the long-term gains of physical rehabilitation as important to ultimately support long-term job retention.

5.3.1.4 The future of work.

Both participants had concrete short-term goals relating to maintaining their work hours and doing physical rehabilitation. When asked about short-term goals within the next six months, both participants indicated that they expected their work hours to increase. These plans were well established and well-articulated, indicating confidence and clarity both in the plan itself and in their ability to enact the plan:

I suspect I’ll start winding up my hours because I’ve got work to do and I’ll do it to the extent that I can do it and fit in my rehabilitation hours and have some social time so I don’t exhaust myself. (P7, T2)

Participants diverged in their long-term goals, with P1 being very engaged with his career, and P7 aiming to eventually transition into retirement. These long-term goals were similar, however, in that they were significantly less defined than the short-term goals. When asked if he had long-term goals, Participant 1 was uncertain, due to the unpredictability of physical rehabilitation and the project-based nature of his work:
At this point in time, not really, no ... With work, my goal there is effectively to deliver some of these big projects that I’ve just got started which will take 6 to 9 months. I guess that’s more a medium term goal by the end of year to deliver these projects.

Longer-term goal? I don’t know. (T3)

It seemed that the injury had caused Participant 1 to reassess the long-term goals he held prior to the injury:

I did have aspirations before this happened of going up to the next level of executive, and I had a number of opportunities acting in my old boss’s role. At the moment, I’m not sure that I really have that desire ... [I have] reassessed some of the career aspirations that I may have had previously. (T2)

It seemed that this reassessment, the unpredictability of the extent his physical recovery and uncertainty in his workplace, precluded Participant 1 from setting long-term goals. In contrast, Participant 7 envisioned how he wanted his life to be in the long term; however, this was less defined than his short-term goals:

One year into the future? Yeah, working effectively about three days a week or something part-time. Not full-time anyway ... I hope not to be working in 10 years. (T1)

Long-term goal setting was challenging in EIVR, given that RTW occurred in parallel with community reintegration and the ongoing physical rehabilitation program. These factors can place increased and unanticipated physical and psychosocial demands on participants. These demands pose potential barriers to long-term goal setting. However, this did not seem to undermine participants’ confidence, as the strong support from EIVR and employer provided a safety net against unforeseen issues in RTW. This sense of security enabled both participants to approach the future with a sense of curiosity and positive anticipation, underpinned by secure relationships with supportive employers and clear short-term goals. Thus, the ‘fast track’ to
RTW was facilitated—these participants were able to return to work within weeks of discharge from hospital.

5.3.2 Participants not returning to prior employment

For participants who were not employed prior to the injury, or whose injury precluded return to their previous employment, job seeking took a more complex and meandering path. This pathway involved fluctuating attitudes towards work and modification of the vocational identity. Nonetheless, participants described an overarching process of increasing confidence and readiness, from being entirely unready to think about work, to being ready to implement a RTW plan.

5.3.2.1 Unready: ‘There’s no way I could return to work now’.

Participants described an initial period of total work incapacity—working was initially inconceivable to them for the first few weeks after injury. This was a period of shock, grief and adjustment. Participant 4 described his adjustment to his new ‘physical being’:

To be honest, it didn’t really cross my mind whether I wanted to go back to work or anything. I think I was more focused about trying to get over the fact that I was injured, and then where I could get to with my rehab ... I was struggling to try and understand why I was injured ... That was my only thought then, ‘cause going back to work wasn’t a priority for me. (T1)

During this stage, work for some participants was perceived as an impossible undertaking primarily due to physical incapacity. When asked if there was a time they were not ready to think about work, participants initially described feeling overwhelmed by their new physical being, with a sense of being at the beginning of a long, uncertain road:

In the early days, I knew that it would be a while before I could work again ... it was still a long way into the future because I didn’t really know how long my recovery process would be. (P3, T1)
Participants further highlighted that in the hierarchy of recovery, physical recovery was of primary importance initially, at the expense of work readiness:

*I definitely want to work, [but] at the moment it’s not as important to me, because of my rehab. (P4, T1)*

Participant 6 was notable in that she expressed that she still was not ready to think about work 11 months after injury, providing a window into the ‘not ready’ phase and emphasising the highly individualised and context-bound nature of work readiness after SCI. Her preoccupation with physical recovery and her feeling of overwhelm came through strongly. She often reiterated:

*And like I said, there is no way I could return to work now. (T1)*

Her narrative was problem-saturated and heavily focused on the barriers to working. For example, she discussed the time needed to get ready in the morning:

*You know, my morning routine just to get out of bed takes two hours ... and by the time that’s completed, I’m quite tired and then to have to find a way to get to work, either public transport or maxi taxi and, you know, to get to work, you’d be looking at, you know, probably three hours of, like even getting up in the morning’s exhausting. (P6, T1)*

There was also a palpable sense of depression when discussing how life had changed:

*Some days you didn’t want to get out of bed to go to work, now I wish I could get out of bed and go to work. (P6, T1)*

When asked what would need to change to help her move closer towards work, Participant 6 identified primarily physical and cognitive constraints, underscoring her focus on her physical being:

*Probably my level of fatigue. And mobility. I’d like to be walking again ... Yeah, mostly the fatigue and ability to concentrate and retain information. (T1)*
Participant 6 was focused on inability and challenges. In contrast, participants moving out of the ‘not ready’ stage were focused on gains made. Participants suggested that physical gains moved them towards readiness to consider and discuss work. Participant 4 expressed that he felt ready to think about RTW ‘when I pretty much plateaued on my recovery or rehab’. Participant 3 seemed to agree:

*Like, I have a bit of feeling in my legs now that I didn’t have then. So that’s been a big help to me. (T1)*

The plateau in physical rehabilitation was associated with increased physical confidence, psychosocial adaptation and more spare time in which to consider the future, and a realisation that potentially, physical functioning was not going to fully recover. These factors combined to increase readiness and refocused participants towards RTW.

**5.3.2.2 Ready to talk about work: Finding something to be passionate about.**

Participants described momentum towards readiness to engage with services that seemed to be facilitated by a measure of physical and psychosocial adaptation to the injury. These early thoughts and feelings about work were characterised by a sense of optimism and a quest for meaning in the new career path. This stage involved high levels of hope and motivation, which participants tended to later characterise as unrealistic. For example, during his first interview, Participant 5 was optimistic and eager to implement plans:

*I'm definitely focusing on returning to work as soon as possible ... hopefully within the next three months or so ... I just want to get back to as normal a lifestyle as possible as soon as possible. (T1)*

However, in his final interview, P5 was more pragmatic and reflective of his attitude in the previous interview:

*I believe probably our first conversations would have been [when I] came out of hospital guns blazing. (T2)*
Participants 3 and 4 had similar thoughts, particularly pertaining to walking and returning to normality:

*I was, at the start, blindly determined in everything, like I was determined that I would walk again, just get back to my previous life. (P3, T1)*

*Realistically, I told myself when I was in hospital that I’d be able to walk in a year. But I know that it’s not achievable. (P4, T3)*

Correspondingly, participants in the first interview often expressed confidence in achieving their goals and were less likely to engage with the logistical/physical barriers to RTW, often minimising these or using dismissive language:

*Oh, I feel confident I can actually do it. Obviously there’s going to be days where I’ve got to be productive, mentally I won’t be able to motivate myself to do the study, or … to turn up and do some voluntary work. So it’s like anything else, going to exercise, not ‘cause you have to go and do it, but once you’re doing it and you’ve finished and you feel good. (P4, T1)*

Similarly, early goals were often broadly defined without detail, reflecting positive attitudes and motivation towards RTW. Participant 3 was an example of this, stating simply:

*My goal is to be in part-time work in the next, like, six months. (T1)*

Together with the generally unconcerned attitude often expressed towards barriers to RTW, it seemed that this early positivity and motivation was supported by a lack of engagement with the potential realities of RTW. During this ‘thinking about it’ stage, work was too distant to threaten participants’ optimism. Further supporting this optimism, participants often reflected on what went wrong in their previous career trajectories, using the injury as an opportunity to reassess their career choices. Therefore, goals involved big-picture changes in the career trajectory. Participants expressed desires for more meaningful career pathways, with the injury presenting an opportunity to follow vocational dreams:
But I was really determined to find something that I was really passionate about ... And I thought if this isn’t a life-changing experience to go after something I wanted to do, then what would be? (P3, T1)

This more meaningful work was potentially radically different from prior work roles and more in keeping with long-held passions or desires. Meaningful work was also considered less comfortable and more challenging than other work.

I was so stuck in my ways and it was just too easy to go back to being an electrician and finding a job as a sparky rather than stepping outside the box and the comfort zone and doing something that I probably really wanted to do. (P5, T1)

The aspect of remaking one’s life, combined with the optimism characteristic of these early stages, drove motivation and supported participants’ engagement with the broader rehabilitation program. Participant 5 asserted that his positive attitude was a key driver in his recovery:

[My optimism] definitely helped drive me since the day I had my injury. I’ve definitely taken a step back but I’ve still got all those same feelings and emotions driving me, wanting to do the same things. (T2)

Although these feelings modulated towards ‘realism’, they clearly served a purpose for these participants, whose continuing engagement with EIVR and the broader rehabilitation program moved them forwards in their RTW trajectory.

5.3.2.3 Ready to plan: Tackling the practicalities.

Steady progress in rehabilitation gave participants the confidence to start making plans, and this was accompanied by a marked attitudinal shift. Anxiety began to build as work moved closer, and prior optimism moderated towards pragmatism:
Now that I’m at the point where I am, I’ve realised that I need to get a job, to set myself up again. I feel now that I can’t be as picky ... I had all these grand plans at the start, and because it was so far away it was easy to think like that. (P3, T1)

Awareness of the barriers to employment seemed to solidify as participants moved closer to RTW. They became more focused on and expressive about these barriers than other topics, underscoring their salience to participants’ thoughts:

For me, I’m not driving still ... In my head, I guess that would be a big one at the moment. And probably still recovering and getting used to my body. Even kind of short outings can really take it out of you. I think it’s probably the stamina side of things as well and knowing that I’m going to be able to manage a 9–5, five days a week or how many days a week I choose to go back to work. (P5, T2)

Goals seemed to shift away from previously expressed aspirations, moderating from aspirational aims towards addressing more immediate financial concerns:

Even if while I’m still recovering I have a part-time job just to get me financially stable again, I guess in the back of my mind I would have that long-term goal of getting something more meaningful happening. (P3, T1)

Participants described the types of jobs for which they would be suitable as predominantly office-based, and there was a sense of apprehension about these roles. While they suited participants’ short-term goals, there was a fear of stagnating and failing to reach the broader goal:

Yes, I know I will get stuck, you get into a certain group and if I start getting comfortable with how I feel, I’m probably not going to do what I want, follow through. (P4, T2)

Participant 5 described a process of breaking longer-term aspirations into short-term goals. This new goal satisfied shorter-term needs while serving the long-term ambition (providing ‘building blocks’ towards his ultimate goal of studying to become a psychologist):
I think for me, if I go and do a Cert 4 in Training and Education, it would give me a little bit of insight as to how I’m going to go in regards to doing assignments again and studying. And then I can go right, I was quite content with that and I’d be happy doing more. So I guess it’s more like the building blocks at this point in time. (T2)

Avenues towards RTW often involved study, although volunteering was another potential pathway towards achieving an employment goal:

So the job that I’m sort of looking for, basically something to get me through this year, while I’m studying. I’m not necessarily looking for something that relates to it but if I find that that would be a bonus. (P3, T2)

Participant 4 viewed volunteering as an effective pathway to achieving ultimate goals:

Trying to see if there’s any interest, for starters, and whether they will take me on as an unpaid volunteer. Basically, to do what I want to get into, I need experience. So volunteering is probably the best thing for me to do at the moment. (T3)

It was common for participants to pause their return-to-work journeys at this point due to unexpected financial relief (see Section 5.5.1.5) or unexpected gains made during rehabilitation. Participant 4 described refocusing his efforts on physical rehabilitation as a result of such gains:

*I’m getting a lot of function coming back through my physio sessions ... plus my gym work for strength and conditioning. So, at the moment, [I am] putting the study and volunteering on hold for probably at least another six months because of my return of functionality. (T2)*

Ongoing health concerns related to medical complications were also a potential issue for EIVR participants:

*I had my operation eight weeks ago and prior to that eight weeks, I probably spent six weeks in and out of the hospital while they worked out what’s going on. That really put
a big hold on things for a while there. I lost a lot of time. That’s definitely impeded on things. (P5, T2)

Transitioning from hospital to community living could also defer RTW due to the inaccessibility of the home and community when compared to the spinal unit. This transition proved more taxing than anticipated for some participants, who seemed to require more time for adjustment to regain prior readiness to RTW. Participant 5, having returned home three months prior, elaborated on these difficulties:

[Returning home was] probably a lot more challenging than what I first predicted. Leaving hospital, I guess you become so comfortable there and things seem like you’re managing well, but then once you are out in the real world again, there’s all those really small obstacles or things around the house that aren’t the easiest things to do because they’re not quite set up like the spinal ward. (T2)

A common issue particularly relevant to this stage was the threat of despondency, largely relating to feelings of inaction and isolation. Participants expressed a sense of being ‘stuck’ in the wheelchair or in their homes:

It probably hits me a little bit more now because I’m stuck in a chair and I can’t go anywhere and ... I’m down I guess. (P2, T2)

This is the first time I’ve been stuck inside the house all weekend because it’s been raining. It probably doesn’t help for the fact that I was home alone by myself for the majority of the day. (P4, T3)

However, action seemed to help participants develop a more positive outlook, emphasising the utility of VR in promoting psychological wellbeing during physical rehabilitation.

5.3.2.4 Ready to act: ‘Now I’m actually doing it, it definitely feels like I’m more in control’.
Of the unemployed participants, two had begun to enact their plans: Participants 2 and
3. The actual ‘doing’ of the plan seemed to ease anxieties and promote a sense of control:

*I’ve applied for [a job] but there’s just not a great deal out there that’s kind of the
hours that would be ideal. But, I mean, I’ve started so that’s the ball rolling ... it
was just kind of like rolling around in my head but now I’m actually doing it, it definitely
feels like I’m more in control (P3, T2)

*Once I got the Kubota [small utility vehicle], I could go spray lantana and stuff. That
helped me a lot once I started getting out and doing something. (P2, T1)

Both participants were trying new things and this brought a sense of energy and
excitement to their interviews:

*I’ve also enrolled to study again, which I didn’t think I was going to do last year. That
was something that I kind of decided at the end of last yea
That’s exciting. (P3, T2)

Participant 2 was particularly interested in trying new things, re-evaluating and
reformulating goals from one interview to the next. Goals at the first interview focused on
returning to riding horses:

*I’m feeling a lot more confident in my horse riding now. I just need to get somebody
with me so I can do it all the time. (T1)

By the second interview, however, he was much more focused on training dogs:

*I’m going to a dog school. That’s in early next month and quite looking forward to that.
I’m sort of learning a bit more about how to get a better handle on them ... for dog
trials ... I’d like to get into the dog trials just to have a go at it and see what it’s like.
(T2)

This change in focus highlights Participant 2’s resilience, fuelled by his determination
in the face of the challenges posed by his injury and his rural location. In the final interview,
he stated:
If I got a bobcat and just used it here for myself for a while until I got it, I could figure out how to get about and do stuff with it, well then I reckon I could probably go and do a bit for other people. (T3)

This is in stark contrast with Participant 6, whose focus on problems and barriers potentially prevented her from moving forward in her RTW. Participant 2 reframed challenges as problems to be solved and described a tendency to consistently revisit and re-evaluate goals in the face of new challenges. This underlined the importance of work to him, and his perseverance in obtaining a satisfying career pathway. His positive reframing of the challenges he faced potentially supported this resilience:

I’ve been doing a fair bit, getting stuff, figuring stuff out. Every day, there’s a different challenge, seems to be ... I guess that’s life though, isn’t it? (T3)

Participants 2 and 3 identified social support as a key factor to enacting their plan. These other people were family and friends, and more formal agencies. These supportive others provided information, sometimes organised financial support, and motivated participants. Participant 2, who had difficulty accessing formal support due to his rural location, described the informal support he had received from his community and family:

Yes, I definitely wouldn’t be where I am now without [my wife]. I had a couple of friends organise a charity for us, that was helpful. They [community members] raised probably about $40,000. Which we spent on ... making improvements around here ... To make things easier ... just made our [stock] yards better, more wheelchair-friendly. (T1)

5.3.3 Summary

Participants’ experiences of RTW and job seeking implied an overall trajectory of increasing readiness. Although readiness to enact a RTW plan may require a substantial physical and psychosocial recovery, participants were ready to engage with VR services and discuss work soon after the injury. Those who returned to their pre-injury employment had a
substantially shorter trajectory of readiness, potentially due to the comparatively lesser stressors involved in returning to a familiar role and employer, versus seeking new employment. Participants aiming to find new employment had a longer pathway than ‘fast-track’ RTW participants, with a staged process involving physical challenges, psychosocial adjustment to the injury and concurrent modification of vocational identity. These stages were characteristic of an ongoing process of increasing adjustment and readiness to RTW. Including vocational considerations in this early stage seemed to promote optimism, and therefore, motivation to engage with the broader rehabilitation program. It also potentially mitigated despondency by encouraging a sense of forward momentum.

The unpredictable effects of rehabilitation gains and secondary health conditions meant that RTW plans were paused or slowed as the physical situation gained greater priority. Participation in EIVR seemed to normalise these broader rehabilitation events, and participants were secure in putting plans on hold to physically recover or pursue other rehabilitation goals. That these events could happen early (as was the case for participant 5) or quite far into the RTW journey (participant 1) had important implications for EIVR. Participants’ confidence in pausing plans was largely due to the sense that support would be available when they were ready to re-engage, emphasising the importance of ongoing contact to reaffirm that belief.

It is important to note that participants’ readiness, while potentially underpinned by early intervention VR, continued to increase even after the formal EIVR service had ceased, further underscoring the need for ongoing contact or linkage to community-based services to capitalise on the gains made in EIVR.

5.4 Research Question 2

Which VR processes do people with newly acquired SCI perceive as most helpful in early intervention VR following SCI? The nodes and themes for this question are presented in table 3.
Table 3

*Themes and nodes relating to research question two.*

<table>
<thead>
<tr>
<th>Research question</th>
<th>Themes</th>
<th>Nodes</th>
<th>Collated initial coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2</td>
<td>Back2Work</td>
<td>Info seeking &amp; options exploring Planning Goal setting Worksite preparation Accessibility issues Assistive Tech Building on existing skills Trying new things</td>
<td></td>
</tr>
</tbody>
</table>

5.4.1 Helpful services

This theme related to participants’ descriptions of the core functions of VR within their primary rehabilitation phase. There was evidence that simply including work-related goals in primary rehabilitation oriented the rehabilitation process to be more work-focused. Participants described a process comprising a series of discussions with the RC. The RC’s assistance varied in directedness depending on participant needs and receptiveness, but generally included inspiring hope, providing information, vocational counselling, working through RTW logistics, liaising with employers and sourcing assistive technology.

5.4.1.1 Hope and work orientation.

Prioritising work in primary rehabilitation had two key benefits: inspiring hopefulness and orienting the broader rehabilitation program to include work-related goals. One participant highlighted that early contact with the RC helped her regain hope:
It’s this conversation, it’s hope and the knowledge that there is the possibility to return to work even though I have had this injury. That there may be employers out there that will consider employing someone with significant disabilities. (P6, T1)

Another said that enshrining work as a goal early in his rehabilitation program oriented the whole program to be more work-focused:

They [the wider rehabilitation team] all know that it’s a big goal for me to get back to work as soon as I can, and so they’ve all obviously helped me in my rehabilitation to obviously achieve those goals as soon as I can. (P5, T1)

Participant 1 agreed, indicating that from their perspective, VR was as important as other aspects of his rehabilitation:

There’s the physical rehabilitation that I’m actually doing now with the physios, and going back to work was part of the rehab …It’s all just part of the bigger program I guess. (T2)

Participant 3 indicated that the addition of VR broadened her worldview at a time when it had become very narrowly focused on her physical situation:

I think it was really helpful having those chats [the RC] in the early stages, because I didn’t really want to think about it [work] very early on, and I think it was good that I was forced to, because otherwise your life does totally become about rehab. (T3)

Finally, Participant 7 contrasted the VR service with the workplace-based RTW coordinators, indicating that optimism itself is not sufficient, suggesting the importance of a VR practitioner who understands the specific issues related to SCI:

Yes, they’re [the workplace RTW coordinators] optimistic. They’re very helpful but they’ve never dealt with a spinal injury person before, so they don’t quite understand my situation. (T1)
While hopefulness and work orientation were identified as strengths of the EIVR program, these were complemented by the specialist skills and job functions of the RC, such as the provision of specific vocational information and vocational counselling.

5.4.1.2 Provision of vocational information.

One of the main functions of the RC, as described by participants, is to provide information. During the earliest stages of rehabilitation, this included information about the service itself. As participants became more engaged with the VR process, this information became more specific to include study options and the labour market. For example, Participant 5 valued the opportunity to explore possible educational opportunities as a way towards achieving their employment goal. Likewise, discussing potential first steps to re-enter the work place created hope and motivation to pursue RTW goals:

*Me and [the RC] have been talking about and actually looking at some options TAFE-wise ... to complete some sort of diploma ... and she’s kind of thrown a few things out there about possibly some work ... possibly just in a call centre, just as a starting point.* (P5, T1)

*[The RC] offered advice on particular places that, for instance, the government and the council and things like that shouldn’t discriminate against any kind of disability.* (P3, T2)

5.4.1.3 Vocational counselling and planning.

Participants noted the helpfulness of the vocational counselling offered by the B2W program. This took the form of discussions that allowed participants to consider, explore and work through the options available to them:

*Talking about all the options, if you wanted to study again, if you wanted to volunteer, if you want to go back to what you were previously doing. Or if you want to change, all of those things. Just being able to chat and put your thoughts in order.* (P3, T1)
As the participants progressed in their rehabilitation, vocational counselling became more focused on planning concrete steps towards their goals:

*I think those general types of chats were definitely helpful for me at the beginning, but now it's [VR is] different because it's looking into specific ways and how to get it happening.* (P3, T3)

Participant 4 reported how collaborations with the RC had produced plans to enact these goals:

*I’ve had a few sessions with the B2W person [RC]. We’ve got everything sorted in regards to avenues to get my foot in the door with the area which I want to jump into.* (T3)

Goals developed in collaboration with the RC supported a source of motivation and a sense of productivity, and plans enabled a sense of security and confidence:

*I guess the confidence [in RTW] comes from the fact that I have some surety there and a plan of what we’re trying to achieve.* (P1, T1)

Specific steps often involved gaining or refining job seeking skills, such as résumé preparation. The RC assisted with the development of participants’ résumés and advised them of avenues for locating job vacancies:

*[The RC] was just going to look over my CV and see if she has anything to add to it and she’s sort of given me some links of—council links and things like that—where they might have job vacancies.* (P3, T2)

Injury disclosure was also a concern for Participant 3, who did not use ambulation aids. The RC assisted with the development of the disclosure strategy in the participant’s cover letter:

*In my cover letter I’ve never had the need before to make a disclaimer about myself. It’s usually just selling yourself in a cover letter and this time around I feel like I kind.*
of have to acknowledge that I am recovering from this serious injury and it shouldn’t affect my work abilities but I kind of feel like I need to disclaim it so I don’t know if that will cause any barriers. (T2)

For participants returning to the same employer, vocational counselling involved a focus on the logistics of returning to and sustaining work and preparing participants to have these conversations:

About that thinking and planning how I would go back to work, so that when we actually had the discussion with work, we’d already thought through a lot of it. (P1, T1)

The RC seemed to play key roles in preparing participants for the RTW process.

5.4.1.4 Assistive technology and workplace accommodations.

Most participants utilised assistive technology to some extent and reported that the RC played a key role in advising on the equipment available and sources of funding for assistive technology, advocating for the participants’ specific needs and assisting with applications. This was particularly important for Participant 2, who utilised numerous assistive technologies to access his farm property:

I know they got me a saddle built. I couldn’t fit into my old saddle anymore ... Certainly does make it better. A pair of boots, which give good protection for my feet. They got me a buggy, an off-road buggy to get around the property in. Also a track chair. (P2, T1)

Participants also needed information about available services to fund their assistive technology, highlighting the value of VR-specific expertise in navigating the complex disability service systems:

Knowing how long it was taking and the difficulty in getting supports approved through NDIS, it was recommended to me by [the RC] ... that I should access the Job Access program so I got everything I needed for work funded through Job Access. (P1, T2)
EIVR also assisted participants in accessing job accommodations, assessing jobs and workplaces to identify potential accommodation needs and advising employers about those needs:

*B2W has been helpful because they’ve been talking to HR saying, ‘These are the things that are important that we need to look at’ for my return to work. (P7, T1)*

**5.4.1.5 Ongoing post-discharge support.**

Some participants reported that the RC maintained contact with them beyond discharge. This contact helped them to feel supported and confident at a time when many ‘patients’ feel vulnerable as they venture back into the real world:

*Yeah, most definitely. She’s [the RC] been really good, and I’m hoping to catch up with her again this week, because my discharge date ... is only a couple of weeks away, and so she will stay in contact with me after my discharge date and further help me to complete those goals about going back to studying and working. (P5, T1)*

Participant 3 reported that ongoing outreach supported her in staying on the RTW plan, keeping RTW in focus and maintaining its salience in her life:

*So I’ve still been continuing meetings with [RC] sporadically—like, maybe once a month—and then since the new year, I’ve pretty much been looking for jobs ... It [ongoing support] is helpful, just to kind of get your brain in the right headspace, I guess, for what you’ve got to do and set up a plan. (T2)*

Participant 5 particularly valued this contact during his challenging transition from hospital to community living, suggesting that ongoing RC contact maintained his focus on recovery and eventually RTW:

*I’ve stayed in close contact with [RC]. I’ve seen her this week ...we have an appointment at Work Australia and so I’ve actually got another appointment with them
next week. It’s been super helpful. There’s just a really big drive to better my life to my fullest capacity I suppose. (T2)

It seemed that for Participant 5, VR was a major contributor in his quest to live a full life.

5.4.2 Perspectives on EIVR

While most participants reported positive experiences with the EVR program, there were some issues. These centred on the timing of the service, limits of the service, and communication and linkage.

5.4.2.1 Timing.

Some participants particularly valued the early availability of VR:

*I think it was probably one of the best things that could’ve come about, was to be talking about it [work] at that stage [soon after injury] because I was lucky enough to be in contact with people like [RC] who is still out there helping now.* (P5, T2)

However, there were some concerns about the early timing of the service. For example Participant 2’s understanding of his own needs changed as he adjusted to the realities of returning home. This meant that he felt that funding decisions made prior to discharge were unsuitable back home:

*You know, I got a saddle that I don’t use ... At the start, that was my main thing that I wanted to do was get on a horse and ride ... And said, right, well I’ll get a saddle. You know, that’s what I mean by if I had have got home and had a bit more of a think about things that I needed.* (T3)

He concluded that the early timing had been disadvantageous in his case: ‘I think now that I’ve gone through it, I reckon they sort of pushed it on me too much at the start’. While the RC was responding to the participant’s expressed needs during EIVR, those needs were perhaps not able to be realistically assessed in the hospital context and changed in the face of
the realities of farm life. His rural location meant that support seemed to abruptly cease upon discharge:

I’ve felt like I was, like [RC] was very helpful at the start. Then I just felt like once I was out of there and back home ... I guess they’ve got plenty of other patients that they need to be talking to and helping. (T3)

In Participant 2’s case, more consistent continued support, or delaying some funding decisions, may have enhanced the relevance of the decisions made during EIVR to his everyday life, by assisting in the continual re-evaluation of his plans and supporting his ongoing access to services.

5.4.2.2 Extent of the service and linkage.

The issue of timing was inextricably intertwined with the extent of the service. The B2W program was funded to continue support for clients for up to three months post-discharge. Some participants clearly understood the limitations of the service and were realistic about its capacity for ongoing support. For example, P3 particularly appreciated the level of follow-up provided even though she understood the RC had probably gone beyond the limits of her role to respond to the need for ongoing support:

I think, in any case, she was just being really helpful with seeing me for as long as she did. I think her position is really supposed to be for immediately after you’ve been in hospital or in hospital. (T3)

Participant 2 was unclear about the extent of the service and felt somewhat neglected, particularly in relation to follow-up and support post-discharge. This seemed to be the source of his negative views of the service:

I saw [RC], I went and visited a friend of mine that’s actually down in PA at the moment ... and I saw [RC] while I was down there ... But I haven’t had a phone call from her
all year ... It would be helpful, but they don’t seem to want to do anything anymore. (T3)

Participant 3 was referred to a disability employment services (DES) provider through Centrelink (the government agency that oversees distribution of social welfare) after returning home. This clear linkage provided continuity and helped this participant to feel confident and hopeful about RTW, highlighting the need for ongoing support to retain and build upon the early gains made in EIVR:

However, I have also had two meetings with [DES], who I got referred to through Centrelink, and they help people with particular barriers to get back into the workplace ... and they're going to match me up with a job officer and hopefully help me find something that will be in the realm of graphic design or design or something like that. (T3)

Participant 2 connected with a VR professional through an informal social contact, emphasising that a local service with knowledge of his lifestyle was helpful to him:

Well, a friend of mine’s put me onto [local VR professional] ... He sounds like he understands [my lifestyle] better. He was the one that actually suggested the bobcat because I told him ... I’d like to get one for here on my property. Then he said, if you had one, would you be able to go and do other work? And he reckons there’s other things that they can do to load the bobcat ... do it all automatically. I don’t understand that, but he reckons he’d be able to show it to me. (T3).

Participant 6 highlighted the importance of this linkage. For those unready to engage in EIVR, connecting with VR services at a later date can be daunting:

I think she [RC] was saying in three months that she has me on a caseload after you’re discharged from hospital ... And I actually wouldn’t know even where to start to look for work when I’m ready. (T1)
5.4.3 Summary

The consumer perspective on EIVR described a valuable and appreciated service that promoted hope and provided clarity when things seemed hopeless and unpredictable. VR was initially broad and exploratory, becoming more focused and concrete as participants moved through rehabilitation, potentially commensurate with their readiness to engage. The service commenced with sensitive conversations, reflective of the acuteness of their medical situation. Interventions at this stage centred on promoting the hope for and possibility of work through exploratory vocational conversations and the provision of information. This sense of hopefulness was supplemented by the skill of the RC, whose knowledge helped participants navigate complex disability services and promoted confidence in job seeking. Vocational counselling became more focused as vocational goals became more defined, addressing logistics, supporting conversations with employers, and building job seeking skills. This more practical focus built a sense of increasing confidence.

A key finding was the clear need for continuance of the service after discharge from hospital, or strong linkage to community-based services. EIVR promoted early participant readiness, which must be capitalised upon to derive maximum benefit from the service.

5.5 Research Question 3

Which factors promote empowerment in RTW after newly acquired SCI?

In alignment with the theoretical framework identified in Chapter 3, empowerment was analysed in terms of the intrinsic factors relating to psychological empowerment and the contextual factors that empowered or disempowered participants in their RTW.

a. Which factors promote or diminish self-efficacy, hope, and motivation during the first year after SCI?

b. Which contextual factors facilitate or prevent job seeking and RTW during the first year after SCI?
Themes, nodes and codes for this question are presented in table 4.

Table 4.

*Themes and nodes relating to research question three.*

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5.5.1 Psychological empowerment

5.5.1.1 Self-efficacy.

Themes relating to confidence and self-efficacy were consistent throughout the entire dataset, reappearing with regard to readiness (see Section 5.3.2.2) and as an impact of EIVR (see Section 5.4.1.1). Participants reported being reasonably confident about RTW overall. Most participants tended to characterise themselves as self-confident people:

*I guess I’ve always been fairly confident of anything I’ve wanted to do.* (P2, T1)

*I’ve always been ready to give anything a good go. So being in the wheelchair doesn’t particularly faze me, and so yeah, my confidence is definitely up there and I’m ready to have a crack at it. I’m not scared about it.* (P5, T1)

Beyond pre-existing self-confidence, self-efficacy was primarily reinforced by setting and meeting achievable goals:

*I’ve set short-term goals and I’ve [completed those tasks] so I’m more confident that I can get to these goals … they’re more achievable now that I can see the progress that I’ve made.* (P4, T3)

Retrospectively, participants commented that gains in their physical capacity promoted feelings of control, implying that a lack of confidence in this physical capacity may present a barrier to empowerment in the early stages:

*I didn’t think I’d be able to do as much as I can do actually. Like, I have a bit of feeling in my legs now, that I didn’t have then [during the first weeks post-injury] … So that helps me a lot with transfers and so forth. I find it a lot easier now to transfer into a vehicle and so forth.* (P2, T1)

Diminished self-efficacy was also related to challenges in physically completing work tasks. This feeling was expressed by participants regardless of the physical demands of the role.
Participant 6 highlighted the pervasiveness of the physical limitations associated with SCI and the impact of these, even on ‘sedentary’ work:

And it’s also like, having to relearn how to write too. I mean, I have to hold a pen differently and that can be quite fatiguing believe it or not, just having to concentrate to write. (T1)

There were also self-efficacy issues relating to participants’ own skills and abilities. When asked about the primary barriers to feeling ‘in control’ of their RTW journeys, participants expressed that their feelings about their qualifications, academic ability, skills and physical abilities undermined their confidence. Participant 3 described a lack of confidence stemming from both injury-related physical effects and pre-injury qualifications and academic ability. These self-doubts related to the participant’s ability to implement the RTW plan, which involved study and seeking part-time work:

Like my own confidence of my abilities would be the main thing. Not only the injury but also just in general, like my pre-injury abilities in what I was qualified in. (T1)

Self-efficacy was also affected by the uncertainty or feeling ‘out of control’ in relation to vocational goals. Participant 6 described a feeling of having limited control over her career trajectory due to feelings of uncertainty about her career goals:

I’d probably say maybe 50 per cent [in control] because I haven’t made a decision on what I’m gonna do yet. (T1)

For some participants, it seemed that self-efficacy could be diminished as a result of new physical limitations, or new work-related goals outside participants’ prior experiences. In contrast, some participants seemed somewhat inoculated against these factors by seemingly unshakable self-confidence, but for others, meeting targets and progressing in rehabilitation promoted self-efficacy. The prevalence of confidence and self-efficacy within the whole
dataset underscores the importance of this variable to the RTW trajectory, and implies a place for EIVR to reinforce self-efficacy.

5.5.1.2 Hope.

Themes of hope and resilience were prevalent in the data. Participants were generally hopeful and optimistic about the future, both in terms of their recovery and RTW pathways. This hopefulness seemed to be underpinned by a several factors, including a future focus—participants usually spoke primarily about the future and avoided comparisons with their pre-injury situation. Participant 2 implied a conscious choice to focus on abilities rather than limitations:

*I still can’t do it, but it’s not that big an issue because I can do other things.* (T3)

This was echoed in Participant 4’s account, wherein he discussed the mindset underpinning his enduring positivity:

*I focus on the ‘now’, what I can do to change my life for the better. I’m not saying that I wasn’t any worse before my injury, but there’s a couple of things that I count my blessings for.* (T3)

Hope was also reinforced for some participants by the tendency to reframe the injury as an opportunity. Participant 4 was most expressive of this theme, as he reported that he felt trapped in his pre-injury career trajectory, and the injury (and associated insurance/welfare) gave him the space to reassess and pursue more meaningful goals:

*Well, I wanted to study while I was working, but I didn’t think I would be able to do that with trying to live the life that I had before my injury ... it wasn’t a goal that I thought I could achieve at the time. But I think any advantage to having an injury like this is that I’ve got a lot more time to think about what I can do now without the hassle of financially having to support myself in the working aspect.* (T1)
This reframing of the injury as an opportunity also reinforced hope in participants’ RTW pathways. It seemed that the injury presented an opportunity for participants to exercise autonomy and bring their career into alignment with long-held desires (this theme is also explored in Section 5.3.2.2). Participant 5 expressed that this opportunity fed positive feelings about the work-related future:

*I think my outlook on work is probably a lot more positive, because I’m looking at new experiences and finally doing something that I’ve kind of wanted to do for many years.*

(*T1*)

The tendency to focus on ability rather than disability, on the future rather than the past and on opportunities rather than limitations, seemed to motivate participants in their rehabilitation and RTW. Given the tendency for themes of hope, optimism and resilience to emerge and re-emerge throughout the data, it seemed that this was an important psychological component for moving participants through their RTW pathways.

### 5.5.1.3 Motivation.

Motivation was a theme evident throughout data analysis. It seemed that motivation fluctuated depending on participants’ stages in their RTW journeys (see Section 5.3.2) and could be reinforced through EIVR. Broadly, the underlying factors that motivated participants tended to be the valuing of work in itself, returning to ‘normal’ and finances.

### 5.5.1.4 Valuing work.

Enjoyment of the work itself was a key motivator, driving participants to engage with RTW and continue pushing forward in their rehabilitation programs. Participant 1 exemplified this theme, repeatedly expressing enthusiasm for his pre-injury work:

*I actually love what I do. That’s why I want to, you know, get back doing more and more of it!* (*T1*)
Other participants were reflective of the benefits of RTW in improving their overall quality of life. RTW was associated with a ‘better’ life, and this motivated participants to engage in work-related activities. Participant 2 was particularly motivated by the idea of recovering from his SCI, and the RTW program was a way of progressing in that recovery and ‘getting better’ in all aspects of life:

*Now I want to do stuff to help me get better. Try to get better.* (T1)

Employment was also viewed as a way of contributing to society and repaying the goodness of others that the person experienced after their injury. Participant 4 was especially motivated in this regard:

*And again, with the nurses and the doctors, taking me through my injury and looking after me while I was in hospital. It’s made me readjust my thoughts about what I want to try and do, what I want to give back.* (T1)

Participants also identified working and independence as key indicators of being ‘back to normal’. When asked about the key benefits of work, Participants 3 and 5 were emphatic that work was the essence of normality:

*I just want to get back to as normal a lifestyle as possible as soon as possible ... 110 per cent. It [work] would pretty much probably be the core of normality for me.* (P5, T1)

### 5.5.1.5 Finances.

Financial considerations provide a strong motivation for RTW. Participants discussed financial strain regardless of age, socio-economic status or pre-injury occupation. Finances were a concern from very early post-injury. Participant 2 described finances as a key driver in his initial thoughts about work soon after his injury:

*What I was gonna do, like I had no insurance or anything so I had to think about what I was going to do.* (T1)
Unexpected financial relief in the form of welfare or compensation payments seemed to shift participants’ priorities. Participants were markedly more relaxed in their RTW journeys when they were in receipt of such payments:

I’m lucky enough to have got income protection and a few TPD claims that I’m just in the process of lodging. My income protection is going to basically cover me until [date stated]. So not [RTW] this year coming but the next year. It’s just given me the opportunity as well to step back and go ‘I don’t need to rush in and make a decision this week’. I can spend a bit of time getting used to things again and finding out what it is I really want. (P5, T2)

This is best illustrated with Participant 3’s situation, in the stark contrast between her attitudes towards work from the first interview and the final interview. Her Centrelink claim was eventually approved, resulting in her scaling back her job seeking intensity in favour of a more relaxed, long-term approach:

Even if while I’m still recovering I have a part-time job just to get me financially stable again. (T1)

I’ve got enough under my belt, I think, that I’m fine for a few months or even six months or something. I don’t feel as rushed, I suppose. (T3)

For this participant, the sense of anxiety about work was substantially diminished between the first and final time points, suggesting that financial relief improved her psychological wellbeing and promoted a more positive outlook. Further, this financial relief provided the space to pursue more meaningful goals rather than just ‘any job’:

I ended up getting approved for the disability pension, which I still had pending last time we spoke ... [Now] I don’t feel as rushed, I suppose ... In the short term, it’s making me feel less pressured to have to get just ‘a whatever job’. I feel like I can take the time to get a job that is more meaningful. (P3, T3)
Although this financial relief appeared to have delayed RTW for this participant, it was clear that the short-term employment the participant was anticipating would be less satisfying and less meaningful than the long-term goal. Furthermore, financial relief promoted faster attainment of the long-term goal, by allowing this participant to enrol in study relevant to that goal.

Likewise, participants with better financial support, such as income protection, were less concerned with job seeking in the immediate future and had greater freedom to defer vocational decisions. Participant 6 captured this sense of freedom succinctly:

_I’m not really concerned with returning to work. I get income protection cover for another 15 months. (T1)_

Loss of income also affected ongoing rehabilitation for one participant, due to the remoteness of his rural property—going to the gym was made more difficult by the costs associated with travel:

_But I’ve quit going to the gym. I can’t afford to do it anymore. Yeah, everything’s getting a bit tight like that. I’m not making any money. (P2, T3)_

Overall, the impact of financial strain was complex. It seemed from the findings that financial strain may have motivated a more intensive job search in the short term. Financial strain also had the potential to prevent ongoing physical rehabilitation, potentially leading to the loss of rehabilitation gains and diminishing wellbeing. Conversely, financial relief provided participants with more choices in their RTW and seemed to underpin a sense of security and freedom that was potentially beneficial to overall wellbeing. Financial relief also enabled freedom to pursue long-term goals without the possibility of stagnating in a less desirable job, facilitating attainment of the long-term goals set in EIVR. While financial strain was a strong motivator, it diminished capacity to make and enact choices, ultimately disempowering participants.
5.5.2 Contextual factors affecting empowerment

5.5.2.1 Uncertainty.

Participants often expressed uncertainty about a variety of factors, particularly during the earlier interviews. The most commonly reported source of uncertainty was the unpredictability of physical rehabilitation. For example, P4 deferred his study plans to focus on rehabilitation to maximise his physical and functional independence:

Then once I’ve figured out what I want to do with the rehabilitation side of it, and how far I’m recovering, then I’ll probably chuck myself right into full-time study and trying to put in more voluntary work. (T1)

Beyond rehabilitation, one participant described uncertainty about the long-term implications of her injury on her capacity to obtain and sustain a job:

I feel like I kind of have to acknowledge that I am recovering from this serious injury ... later down the track where I’m like, ‘I can’t concentrate because I’ve got nerve pain’ or, like, I don’t know what’s going to happen with all that sort of stuff (P3, T3)

In the first interview, some participants’ career plans and goals were not yet clearly developed; they needed time to assess their career aspirations. Participants found this uncertainty unsettling, with a sense of anticipation of future distress:

If I wanted to change industries or whatever, it feels kind of like starting again. The uncertainty of it ... To be honest, I still don’t really know what I want to do. As far as that meaningful work, what specifically that would be? (P3, T1)

Once vocational decisions were made, the job market was another source of uncertainty. Participants were unsure of their acceptability in the working world given their disability:

With the significant injury that I do have, who’s going to employ someone that’s in a para-wheelchair? (P6, T1)
There was also sense of murkiness when talking about the labour market. Participants expressed that it was difficult to know what employers would be seeking and whether the employers could meet their unique needs:

*I’m a little bit uncertain about what the market is like looking for part-time roles. Because I’ve never really looked for [part-time work] in Australia ... As far as finding an employer that would be flexible in the number of hours I’m able to commit to.* (P3, T1)

Participants’ language was often subtly coloured by uncertainty. Participants tended to couch their goals and plans in tentative words. [Emphasis my own, underlined]:

*It depends* where I’m at in my recovery. (P6, T1)

*Yeah, hopefully. That’s what I’d like to be able to do.* (P3, T3)

*It’s all still very up in the air but I’ve probably narrowed it down a little bit.* (P5, T2)

*I suppose just trying to work out whether or not my previous history in work is worth pursuing.* (P5, T2)

*Longer-term goal? I don’t know. It’d be interesting, I’m actually quite enjoying the secondment. I’m seconded into a role which is obviously currently vacant. I’m sort of flirting with the idea.* (P1, T3)

That this language is evident across all time points indicates that this sense of uncertainty is potentially something that participants had adjusted to and incorporated in their planning.

**5.5.2.2 Accessibility of services.**

Participants often expressed frustration about the limited availability of services, with a sense that plans were on hold while services caught up with their needs. Participant 5 highlighted the impact of the lack of services, which can further delay vocational goals. This
participant was unable to access services for a driving assessment and vehicle modifications that would enable him to be more independent:

There was a scheme up here that just closed their doors for the NDIS [National Disability Insurance Scheme] to roll out that did all the [driving] assessments for your driving and whatnot, so I missed that by a couple of days, apparently. (T1)

Poor communication with services and protracted processing times created palpable feelings of frustration and affected participants’ ability to plan with confidence, thereby disempowering them:

Centrelink have been a real nightmare to deal with ... I applied for the disability pension when I was still in hospital and it still hasn’t been processed. They said it would take three months and it’s been, what, nearly a year ... and, at this point I know they’re going to say no to it ... I’m just still on the jobseeker’s one and the teams don’t communicate, which means that they think that I am able to just work. (P3, T2)

Access to services was dependent on assessments that participants described as time-consuming, particularly those relating to the NDIS. They indicated that this was a deterrent from accessing services:

[The NDIS] give you a plan and pretty much most of the supports require you to go and get assessment started ... but given the first 6 to 12 months coming out of hospital, being discharged you’re trying to get everything sorted and get back to reasonable normality of life and the NDIS process is time-consuming. (P1, T2)

5.5.2.3 Logistical and accessibility issues.

Participants were often very aware of the limits to their autonomy that logistical issues posed, regardless of injury level, severity or ambulatory independence. Moving around within the workplace and commuting to work were affected by challenges to independence:
Mobility-wise, just being able to actually get to a place of employment easily and things like that. (P3, T1)

For other participants, obtaining needed resources presented additional barriers. For example, Participant 5’s difficulties with undertaking driving assessments and obtaining vehicle modifications limited his independence and posed a significant challenge to his ability to travel to potential workplaces:

At this point in time, I think one of the biggest things that’s probably going to hold me back is my transport situation. (T1)

People with SCI who are required to travel as part of their employment can face additional logistical barriers. These are perhaps more significant for people with newly acquired SCI who have not completely adjusted to the injury. This was illustrated in the case of Participant 7, who travelled overseas for work and highlighted the increased logistical complexity of travelling for this population:

I have to get disabled accommodation sorted, I have to get flights, I need to check travel insurance and I need to make sure I can take my own wheelchair over. Okay, so they’re not impossible hurdles; I just need to knock them over before I go. (T1)

These logistical concerns, particularly in commuting to work and in moving around the workplace itself, presented a significant barrier to RTW for these participants and highlighted one of the practical challenges RTW for people with newly acquired SCIs.

5.5.2.4 Support network.

Solid support networks seemed to promote participants’ regaining a sense of control over their lives. Formal supports like the EIVR program, Centrelink and rehabilitation team worked in tandem with informal supports. Formal and informal support networks were interactive, a point highlighted by Participant 5, whose support network helped them feel that
they could disengage and re-engage with formal vocationally focused support services when they felt ready:

*I feel so confident with people like [RC] and myself and my family and things like that around me. I’ve got plenty of support at work and so I feel comfortable with the fact that I will return to work at some stage. It’s just a matter of giving myself time and letting things unfold.* (T2)

Another participant identified that informal support in the form of his partner complemented the formal vocational support offered in the EIVR program, enabling him to find pathways to his goals:

*Probably my partner, and [RC] from B2W. My partner came up with a few suggestions, I told her about what I was looking at trying to do, and then we both took those ideas back to [RC] and they came up with the avenues to pick up for trying to make my goal a reality. So it was a combination of just my partner and [RC].* (P4, T1)

Good informal support networks also freed more time to pursue the RTW goal:

*The main person that’s probably the most support at the moment is my partner. She helps me. I have [paid] carers as well that help me in the morning. I don’t have to do as much domestic stuff, which is good because otherwise I probably wouldn’t get to work until 10 o’clock. Between her and the carers that means that I don’t have to do as much at home and I’ve got more time to do things like go to work and do things like that.* (P7, T2)

The benefits of support networks were perhaps most obvious in their absence. One participant described his progress towards his main vocational goal—a return to horse riding—providing a clear contrast between days when he had support from a family member and those when he did not:
Well I got on one [a horse]—I got on a horse the other day, a couple of weeks ago, we had—my brother was here helping me out a bit. I got on one and helped him and I quite enjoyed it, it felt a lot better than I had before. (P2, T2)

And days without support:

Yeah, I kind of thought I’d be doing more with horses, but I find I’m not confident. I’m not confident enough to start working with horses again yet. I’m hoping down the track that maybe I will ... If I got someone with me that was more handy with horses, I’d definitely spend more time with the horses. (P2, T1)

Both intrinsic and contextual facilitators and barriers to empowerment were evident in the findings. The intrinsic components of hope, self-efficacy and motivation, were woven throughout the entire dataset, underscoring the importance of these factors in participants’ RTW journeys. There were contextual barriers to empowerment, relating to the need for clarity, service navigation and the logistics of mobilising in inaccessible environments. The findings highlighted an opportunity for VR to capitalise on intrinsic resources and mitigate contextual barriers to ultimately empower participants in their RTW journeys post-SCI.

5.6 Research Question 4

How does the occupational bond facilitate job seeking and RTW after newly acquired SCI? The themes and nodes for this question are presented in table 5.

Table 5

<table>
<thead>
<tr>
<th>Research question</th>
<th>Themes</th>
<th>Nodes</th>
<th>Collated initial coding</th>
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</thead>
<tbody>
<tr>
<td>Occupational bonding</td>
<td>Work-related social support</td>
<td>Flexibility at work, Approachable employer, Co-workers, Attachment to work, Work ethic, I am a worker, Working is normal, Inevitability of working</td>
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The occupational bond is one of the main theoretical underpinnings of EIVR. Through early intervention, this bond can be preserved to shorten the latency between injury and first RTW and enhance employment outcomes in the long term. This bond manifested in the current study in two key ways—a bond to the employer and workplace, and a bond to the world of work itself.

5.6.1 Bond to the employer

Participants’ bond to their employers was underpinned by the perception that the employer supported them in their recovery and RTW. Supportive employers were described as having three key characteristics: promoting a socially supportive environment, approachability and flexibility.

5.6.1.1 Work-related social contact.

Both employed participants identified work-related social contact as a key benefit of working after SCI. This social contact was so important for one participant that he increased his days in the office to ‘stay in touch’ with everyone:

*I guess not being there, only being there part of the week, you don’t get the opportunity to build the relationships as much as everyone else who’s there all the time.* (P1, T1)

Some participants described working from home as less satisfying, largely due to the reduced social contact associated with such arrangements. The social aspect of working was a key benefit of RTW that outweighed the disadvantages of commuting to work:

*So, it’s more convenient to work [from the office] and I’ve got a lot more resources here that I don’t have at home and then the second reason is social. You actually get to talk to different people rather than sit at home ... I guess the disadvantage is that it takes a little bit of time to get to work and home which, yeah, I could use for other things.* (P7, T3)
Participant 1 viewed communication as a key function of the employer during his RTW and suggested that his feelings of being out of touch were a result of insufficient contact from his supervisor. The improved contact from the new supervisor promoted a more positive relationship, which supported Participant 1’s ongoing transition back into the workplace, as evident in his subsequent interviews:

*The guy we had before, he wasn’t very good at sharing information or keeping me up to speed ... The guy we’ve got now is pretty good at making sure I’m included in the loop and that sort of thing. (T1)*

Beyond social contact, specific supportive actions included keeping the employee apprised of the goings-on of the workplace, ensuring smooth workflow for payroll and other administrative tasks, obtaining necessary equipment and setting up the workstation:

*Oh, they’ve [HR] have been getting my job access equipment, organising my work station. Just managing, making sure that I’m getting paid properly and all those run-around jobs that saves me having to do it. (P7, T3)*

Finally, a culture of helpfulness among Participant 7’s co-workers made him feel welcome and connected, and eased his transition back to work:

*The front-desk girls I guess, because they actually bring me up bottled water, cartons of bottled water, because I need to drink more bottled water ... And I should mention the health and safety guy. I’m not really sure [what he does] but he’s nice to me. He makes sure I’m okay and just checks on me all the time. (T3)*

5.6.1.2 Approachability, flexibility and understanding.

Approachability, clear communication and active participation in the RTW program on the part of the employer gave participants a sense of certainty and clarity, which seemed to promote the employee–employer bond. When discussing his future plans, Participant 1’s confidence in his employer shone through:
But I know I’ve got my normal role locked in place and the secondment’s a good opportunity. So I’ve got certainty there, and work is certainly very supportive with the return-to-work program. (T3)

Employer flexibility and understanding also underpinned the success of participants’ graded RTW. This included flexibility in hours and days worked, and in allowing participants to work from home. When asked about his employer’s most helpful actions, Participant 7 highlighted their flexibility:

Their flexibility, their understanding, you know. They were happy for me to work reduced hours. (T3)

This flexibility enabled participants to balance work with the often demanding physical rehabilitation program:

There was obviously times where I’ve had to shift a physio appointment for whatever reason or vice versa or work so good to have that flexibility that I can move that around. (P1, T3)

5.6.2 Connection to the world of work and self-identity as a ‘worker’.

There seemed to be an intrinsic attachment to the idea of ‘working’ itself. This attachment included subthemes relating to values, ethics and identity. Values were attached to work in two key ways—valuing work itself and work as an opportunity to act out one’s values. Self-reliance was a particularly salient value:

What else can you do [but work]? I’m not going to sit on the dole and do nothing. (P2, T3)

It’s more just obtaining a job and then being able to get to and from on my own so that I’m not relying on other people. (P5, T1)
Related to self-reliance was the concept of ‘normality’. Participants valued work because it is part of a normal life, and returning to a normal life was a key outcome of all rehabilitation efforts:

*I would obviously consider a normal lifestyle and working full time and going I have to have this or I’m not going to be normal.* (P5, T1)

Work ethic was another common theme. This was inextricably linked to self-identity—participants self-identified as ‘workers’ more often than they identified with their profession, indicating that work had value in and of itself. For these participants, working was a key component of their identities and personalities:

*No, my work ethic is still there, you know. I still want to give it 100 per cent and I know that I can make a difference, regardless of what type of work I do get into.* (P4, T2)

This self-identity seemed to be shaped by socialisation. Working was expected from a young age, and therefore incorporated into the person’s values.

*Yeah, I was always raised to work. I started work when I was 14 ... I’ve always been a bit of a worker.* (P7, T1)

The worker self-identity was then further reinforced through vocational experiences, such that a strong vocational history promoted a strong worker self-identity. This identifying with work motivated participants; self-identifying as a worker potentially drove participants towards performing that identity by RTW, therefore promoting engagement with both the rehabilitation program.

*I guess work has been a strong part, and my role and my career has been a strong part of my life. I want to progress my career, and to do that I need to get back to full time or close to full time.* (P1, T1)

All these values and ethics components seemed to underpin a sense of inevitability. Work was not considered optional for these participants:
I didn’t contemplate that I would not be going back to work at any stage. (P1, T1)

It’s [work] still in my mind a necessity for sure. (P3, T1)

The occupational bond was evident in the present study, with both the relationship to the employer and relationship to the world of work evident in the data. The relationship to the employer was underpinned by early, positive contact with the employee, along with approachability and flexibility in negotiating working arrangements. Participants were also bonded to the world of work in general, driven by their identities as ‘workers’ and consequently, their high work ethics. All participants expressed that work in some capacity was not just possible, but inevitable, underscoring its importance in their lives and therefore within the broader rehabilitation program.

5.7 Chapter Summary

The findings demonstrate the complex and multifaceted nature of planning, seeking and RTW following an SCI. Work is a naturally emotive and value-laden endeavour, and this was reflected in the participants’ narratives. Engaging in VR and returning to work was part of a pursuit of a ‘normal’ life, and an expression of hope for the future. Readiness to talk about work occurred early, underscoring the need for VR within primary rehabilitation. The exploratory nature of these early vocational conversations worked to highlight the possibility of work, and indeed the possibility of more meaningful work than that undertaken prior to the injury. Readiness to engage with more focused consideration of work increased commensurate with ongoing participation in EIVR and gains in physical rehabilitation. Vocational interventions became more focused as readiness increased, promoting confidence and facilitating forward momentum.

EIVR had two overarching goals; to preserve occupational bonds and promote empowerment. Participants were attached to working, and this attachment was capitalised upon in early VR. Work was viewed as a key characteristic of normal life and promoting work in the
early stages of rehabilitation reinforced for participants that normality was possible. In preserving the occupational bond, interventions focused on facilitating connections with the pre-injury employer. Where return to the pre-injury role was not possible, EIVR facilitated vocational exploration, reinforcing the possibility and value of work. In facilitating empowerment, EIVR promoted hope, self-efficacy, and motivation by reframing uncertainty as possibility and facilitating goal-setting and achievement. Capitalising on occupational bonds, EIVR reinforced the likelihood and value of work, and this valuing was motivating.

Contextually, participants were disempowered by the multiple sources of uncertainty characteristic of early rehabilitation and community reintegration. Gains made in physical rehabilitation or the effects of secondary health conditions meant that the physical situation could become prioritised, necessitating the pausing or slowing of RTW plans. Other sources of uncertainty such as the changing landscape of social welfare services in Australia and financial strain further challenged participants’ forward momentum in their RTW plans. The ‘early’ nature of EIVR also meant that participants had to anticipate their vocational needs, set goals, and make plans, prior to resettling into the community. The aforementioned uncertainty meant that plans needed to be continually revised, meaning that these plans made prior to discharge could be unsuitable in the post-discharge, real-life context. All of this uncertainty challenged both the process and effectiveness of EIVR and underscored the importance of continued contact and/or linkage to community-based VR services. These links could reinforce the salience of work, ensure continued support and preserve the gains made during EIVR. The implications of these findings will now be discussed in Chapter 6.
Chapter 6: Interpretation and Discussion

Chapter 6 summarises the findings and their relationship to relevant literature. The findings provided novel insight into the RTW-related thoughts, attitudes, motivations and experiences of people with SCI, within the first year following discharge from hospital. This chapter begins with a discussion of people’s attitudes and experiences following discharge from hospital, highlights participants’ perspectives on EIVR, discusses the relevance of empowerment theory to the findings and discusses occupational bonding.

6.1 Attitudes and Experiences Following Discharge

This section explores the findings pertaining to the first research question, which aimed to investigate how people describe their job seeking or return-to-work process after discharge from hospital. This study supported prior speculation about the ‘fast track’ to return to work, and reinforced the idea that clients are often ready to engage with services soon after injury. The most common theme was client readiness, and a novel finding of this study was that client readiness follows a staged trajectory: thinking about, discussing, planning, and taking steps towards and eventually RTW. Clients’ goals and support needs change commensurate with these stages. This trajectory can be undermined by secondary medical conditions or changes in physical functioning that require an increased rehabilitation commitment. A synthesis of these findings will be presented and their relationship to the extant literature discussed.

6.1.1 Readiness

Most participants described a period soon after the injury when they were definitively not ready to think about work. This period was described as a time of comprehending the injury and its impact on their lives. The length of this period differed from person to person. The New South Wales In-Voc EIVR program has reported similar findings, with some In-Voc participants also reporting an initial period of coming to terms with the injury during which time, they were unready to think about work (Ramakrishnan et al., 2016). For both the current...
study and the In-Voc study, this period of unreadiness seemed to correspond to what is often called the ‘acute phase’—when a person is undergoing acute medical care prior to transitioning to the rehabilitation phase. Some participants reported that regaining physical functioning contributed to a positivity and a subsequent willingness to engage with VR services, but also caused them to defer some vocational goals to devote more time to physical rehabilitation. Participants indicated that physical milestones were related to readiness, including sitting up independently, confidently transferring and managing morning routines. The re-establishment of daily routines has been identified in previous research as an antecedent to work readiness but was thought to take up to two to three years for some participants (Bergmark, Westgren & Asaba, 2011). In contrast, some participants in this study reported sufficient physical recovery to promote readiness to engage with VR often within weeks of the injury.

Primary rehabilitation has historically prioritised the regaining of physical functioning as its primary goal, evolving to incorporate psychosocial adaptation (Borell-Carrió, Suchman & Epstein, 2004). VR has not traditionally been included in the hospital rehabilitation program in Australia (New et al., 2013), due in part to common wisdom that has long held that people must undergo significant physical and psychological recovery before considering RTW. Combined with the dominance of physical and mobility concerns in primary rehabilitation, this misconception has typically resulted in VR being delayed and commenced as an outpatient, often months or years after the injury (Johnston et al., 2016). Emerging EIVR programs have encountered this opinion in rehabilitation staff, some of whom reported apprehension about the early timing of VR due to the perception that it could be burdensome to the person during initial recovery (Johnston et al., 2016). However, participants in this study were ready to engage significantly earlier than previously reported in the literature. This finding aligns with a growing body of evidence supporting people’s early readiness to consider work (Fadyl & McPherson, 2010; Hilton et al., 2017; Krause et al., 2010; Middleton et al., 2015) and casts the
consideration for adjustment in a new light—rather than allowing participants the space to fully recover, the limited inclusion of work-related support may be insufficient to fully address people’s needs or goals. Therefore, the current study, in alignment with the extant body of evidence, supports the integration of VR into the initial primary rehabilitation period to fully meet the needs of people with SCI.

6.1.1.1 Readiness is staged.

Traditional thinking about the burden of VR services during early rehabilitation hinges on clinicians’ perceptions about the client’s readiness to return to work. The current study, however, identified that there are possibly ‘shades’ of readiness. That is, while no participant in the study was ready to return to work during early rehabilitation, all were ready to engage (however tentatively) with work-focused services. Readiness seemed to increase over time, allowing participants to engage with vocational services in increasingly active ways: for example, being ready to think about work, then discuss work, set goals and plan RTW, and actually return to work. However, for some readiness could also regress, particularly during community reintegration (post-hospital discharge) when participants were challenged with adapting to less-accessible environments. Physical gains also affected readiness, at times necessitating an increased focus on physical rehabilitation and pausing RTW planning. It seems that a dichotomy of ready versus unready does not accurately represent the trajectory of a person becoming ‘ready to return to work’. Based on the findings of this study, it is suggested that readiness is a staged and non-linear process.

6.1.1.2 Needs and goals across the stages.

The overall trajectory of participants’ needs, beginning with the more abstract information-gathering stage and moving towards the pragmatic elements of plan implementation, aligned with traditional VR practice, which follows the broad process of assessment (information-gathering), goal setting, planning and implementation (Rubin &
Roessler, 2008). Early VR needs within this cohort largely centred on the need for information and guidance. At the earliest point, this involved information about the B2W service itself. As participants progressed through recovery, information needs became more focused, involving information about specific jobs, study pathways, services and the labour market. This mirrors the needs of consumers within traditional VR, the first step of which involves developing client self-knowledge and knowledge of the labour market, and synthesising that information to inform career decision-making (Buys, Hensby & Rennie, 2003). As career decisions were made and participants moved into the planning stage, needs broadened beyond information provision to include job seeking skills training, liaison with employers, goal setting, planning steps to achieve the goals and strategising to overcome logistical barriers. Further progression into the action phase necessitated worksite visits and ongoing monitoring to proactively mitigate potential pitfalls and ensure the suitability of the plan.

Commensurate with VR needs, work-related goals became more tangible and immediate as the person progressed through VR. Early goals tended to be broad, focusing on RTW at some future stage, or changing career trajectory to a more meaningful but less-defined pathway. As the participant progressed through VR, the RC worked with them to identify potential goals and make vocational decisions, resulting in the goals coalescing and becoming more defined over time. This mirrors the trajectory of rehabilitation in general; people become more aware of possibilities and gain confidence as they progress (Trieschmann, 1988). In contrast to a typical linear VR process, gains in physical rehabilitation often shifted participants’ priorities, causing vocational goals to become subverted for a time. Therefore, goals were revisited and redeveloped continuously to reflect the fluctuating nature of recovery and the person’s changing priorities.

Overall, participants’ vocational needs and goals shifted over time commensurate with increased readiness and progress in VR. There was a broad trend for needs and goals to become
increasingly focused and tangible over time. Although needs and goals differed between individuals, there were common themes at different stages. When integrated with the findings of the study about participant readiness, a larger picture of the readiness stages and the corresponding tasks of the RC began to emerge.

6.1.1.3 Summary and links to stages of change model.

In line with the conceptualisation of readiness as a staged process rather than a dichotomous state, stage-based health behaviour change models were considered to provide a framework for interpretation of the data. During data analysis, it became clear that readiness to engage with VR services and eventually return to work occurs in several stages. At each stage, VR interventions became more active/participatory, goals became more concrete and needs crystallised and became more immediate. The cognitive processes underlying these stages echoed those of the transtheoretical model (TTM) or ‘stages of change’ (SOC) model. The SOC model conceptualises health behaviour change as occurring in five stages, beginning with precontemplation and moving through contemplation, preparation, action and maintenance (Prochaska, DiClemente & Norcross, 1992).

The SOC model is widely utilised within the health psychology literature, in which it has been applied to various behavioural changes including problem gambling (Petry, 2005), cigarette cessation (Prochaska, Velicer, Fava, Rossi & Tsoh, 2001), weight loss, (Johnson et al., 2007) and exercise (Marshall & Biddle, 2001). The SOC model has been operationalised within VR through the Readiness to Return to Work Scale (RRTW) (Franche, Corbière, Lee, Breslin & Hepburn, 2007). Although validation studies have found reasonable construct validity for most dimensions of this scale, there are still questions as to whether the experience of RTW can be compared to other health behaviour change, given the complex and context-dependent nature of the task (Aasdahl et al., 2018). Despite these theoretical issues, there is consensus that interventions based on this model are effective (Manthey, Jackson & Evans-
Brown, 2011; Page & Tchernitskaia, 2014). One such intervention, motivational interviewing (MI), is commonly employed within VR due to its brevity and straightforward application (Wagner & McMahon, 2004); MI has also been employed within EIVR specifically (Middleton et al., 2015). Given that MI is predicated on the SOC model, the prevalence of MI within the VR and EIVR spaces potentially supports the relevance of the SOC model to EIVR after SCI.

There is a key practical benefit to conceptualising readiness to RTW in this way. Drawing on practice guidelines relating to the earliest SOC may provide avenues for intervention for the least ready clients. Utilising the SOC model also overcomes the issue of timing; an intervention tailored to the person’s stage of change cannot be ‘too early’, as this approach works with the client at their level of readiness (Wagner & McMahon, 2004). Following is an analysis of the findings in light of SOC research, highlighting the role of the RC at each stage.

6.1.1.3.1 Precontemplation.

All participants described an initial period during which RTW was unthinkable. This closely aligns with the ‘precontemplation’ stage in the TTM, in which a person has no desire to work towards the target behaviour (Prochaska et al., 2001). Theoretically, the cons of returning to work outweigh the pros, and motivation is low as a result (Franche & Krause, 2002). When reflecting on their experiences of the earliest time post-injury, participants reported being preoccupied with physical recovery, coming to terms with the injury and grieving the loss of their old body. Participants described themselves as ‘not thinking about work’ during this time, aligning with the conceptualisation of precontemplation as involving avoidance of the target behaviour (Prochaska & DiClemente, 1983). Participants’ reflections on this stage indicated that this ‘not thinking about work’ stage seemed to coincide with the acute phase of rehabilitation, during which additional services may be unwelcome. Therefore, interventions targeted at clients in precontemplation should be tailored and sensitive to the
person’s needs (Prochaska, 2008). Research suggests that the key task of the RC during the precontemplation stage is to promote introspection, increase awareness about the target behaviour (RTW) and provide information (Prochaska, 2008). Thus, the main task of the RC during this stage is threefold: providing information about the service itself, enshrining early the belief that work is possible and sowing the seeds for future consideration of work.

6.1.1.3.2 Contemplation.

As participants progressed in their recovery, they reported feeling ready to consider making career decisions with the support of the RC. Participants in this stage were able to contemplate the possibility of work and were more aware of the advantages of working. Thoughts of work, however, tended towards big-picture changes to the career trajectory that could take months or years to enact. This reflects Prochaska et al.’s (1992) conceptualisation of the contemplation stage, in which the person entertains the idea of change, but remains ambivalent. Research into the contemplation stage emphasises exploration of the advantages and disadvantages of the given behaviour (Gorely & Bruce, 2000; Prochaska, 2008), mirroring the process of vocational evaluation and subsequent decision-making (Buys et al., 2003). Therefore, a key task of VR at this stage is exploring potential career choices and matching these to the person’s values and aspirations.

Participants in the contemplation stage were less engaged with the barriers or logistics of working, promoting a sense of confidence and optimism. This is potentially due to the often lengthy pathways taken to RTW after SCI—participants were not confronted by work because it was still some time away in the future. Participants who reported heightened optimism during this stage were changing career paths, indicating that there was something about changing pathways that may have promoted positive feelings. Prior research about career-related optimism suggests that these positive feelings are predicted by high perceived levels of social support (Garcia, Restubog, Bordia, Bordia & Roxas, 2015), which was evident for the most
optimistic participants, who reported strong networks of family and friends. Changing career pathways may require an increased amount of VR than returning to the previous employer, resulting in these participants having higher perceived support from the RC. Some participants also suggested that the injury freed them from previous career pathways that were unsuitable or unsatisfying in the long term. This opportunity for increased self-determination supported a positive outlook. Conversely, the absence of this optimism seemed to coincide with a perceived lack of support, as was the case for Participant 2. It seems that increased opportunities for self-determination, combined with a high level of perceived support, potentially resulted in high levels of optimism for these participants, further underscoring the roles that self-direction and social support potentially play a role in facilitating optimism post-injury.

When reflecting on this early time in later interviews, some participants characterised their early positive feelings as perhaps being unrealistic, but maintained that these attitudes were nonetheless helpful to them. Prior research investigating adjustment to SCI indicates that hopefulness is both protective and motivating, mitigating the negative emotional impact of the injury while promoting engagement with the rehabilitation program (Dorsett, 2010; Kortte, Gilbert, Gorman & Wegener, 2010). The findings of this study align with prior research, underscoring that EIVR should reinforce these hopes and aspirations, even if they are unrealistic, as these hopeful attitudes seem to have a protective effect during adjustment to the injury. Research suggests that the foci of hope changes as the person recovers (Dorsett, 2010; Lohne, 2009), a process that was mirrored in the current study wherein participants’ hopes were eventually self-modulated towards realism. This optimism potentially promoted motivation and engagement with the VR program, moving participants forward in their readiness to RTW.

Taken together, the findings relating to the contemplation stage highlight a key task of EIVR during this stage: strengthening formal and informal support networks, facilitating
autonomy through vocational choice-making and fostering hope. These factors appear to facilitate optimism and energy that can be capitalised upon in VR to protect against despondency and promote forward momentum.

6.1.1.3.3 Preparation for action.

As participants progressed through both their physical and VR, goals and plans began to solidify. Action steps and timelines were introduced and participants began preparing to enact the plan. Theoretical conceptualisation of the preparation for action stage asserts that the advantages of changing (i.e., RTW) outweigh the disadvantages, and the person is therefore more motivated and more receptive to VR intervention (Franche & Krause, 2002). Although the timeframes typically proposed for this stage (change occurring within 30 days; see Prochaska, 2008) may not be realistic for people with SCI given the often lengthy hospital admissions and rehabilitation programs, the small changes typically enacted in this stage were reflected in the data. Participants would set up a space to study or apply for jobs, develop their résumés and write cover letters in collaboration with the RC, aligning with Franche and Krause’s (2002) suggestion that behavioural change processes, or work-focused behaviours, begin to occur in this stage. There appeared to be an attitudinal shift away from optimism, modulating towards realism—participants were aware of the obstacles to RTW, but could also express strategies or plans to mitigate these. The shift in participants’ attitudes is potentially reflective of experiential change processes, or the participants’ changing thoughts and feelings towards work (Franche & Krause, 2002). The synthesis of the findings and the literature suggests that the VR professional’s key role in this stage potentially includes helping identify pathways to participants’ aspirations, assisting in setting achievable goals, proactively strategising to mitigate potential pitfalls and liaising with the employer.

Participants in the preparation for action stage described the value of goal setting in reinforcing optimism and motivation. Rehabilitation theory underscores this finding,
suggesting that an effective goal-setting process fosters motivation and subsequently enhances the likelihood that goals will be achieved (Levack et al., 2006). Participants’ goals in the current study appeared to moderate from ‘big-picture’ goals to short-term aims as RTW drew near and apprehensions became more immediate. This highlights a potential role for the RC to assist in translating loftier dreams into achievable steps, addressing immediate needs while retaining the ‘big-picture’ hopes of the individual.

A particular concern associated with this early injury population is the potential for fluctuating health status and the need for ongoing rehabilitation to undermine the transition to work. This is of particular concern in the preparation stage, as this stage often seemed to coincide with discharge from hospital for participants in this study. Research indicates that the time soon after discharge is often challenging due to the regaining of functioning (Carr et al., 2017) and the need to relearn skills for everyday life (Alve, Bontje & Begum, 2019). This could necessitate deferral of RTW plans. Thus, a key task of the RC during this stage is to proactively support the transition from hospital to community living, in alignment with the rest of the multidisciplinary rehabilitation team. An additional VR task is to develop strategies to maintain connection to employment during this time. One such strategy to maintain connection identified in this study was visiting the workplace. Occupational bonding theory suggests that workplace visits can help maintain the person’s relationship with their employer and ultimately facilitate timely RTW (Bloom et al., 2019; Shrey, 1996). This was echoed in the findings of the current study.

Participants preparing to RTW with the same employer reported that visiting their place of employment was useful during this stage. These visits served to reinforce self-efficacy in moving around the work environment and allowed for modifications to be made to the workspace. Employer endorsement and co-worker support is vital for the success of job
accommodations (Dunstan & MacEachen, 2014), indicating a potential role for the RC in negotiating such accommodations to ensure their success.

6.1.1.3.4 Action stage.

Sufficient progress in physical and VR promoted confidence. This confidence in turn promoted forward momentum into the action stage, in which participants enacted their RTW plans. The action stage involves taking purposeful steps towards the stated goal (Prochaska et al., 1992). In this study, such purposeful steps included commencing a graded RTW, attending job interviews and linking with community-based VR services. The major VR task of the action stage is to support the person in their efforts (Prochaska, 2008), meaning that ongoing monitoring is the key task of the RC at this stage. It seemed common in the data for the implementation of RTW plans to stop and start intermittently, depending primarily on the extent of ongoing physical rehabilitation and the person’s level of fatigue. In such cases, the person might need additional support to liaise with the employer to renegotiate the plan. This finding echoed prior research investigating the TTM in VR, which found that participants in the earlier action stage report diminished wellbeing compared to other stages (Franche et al., 2007). This is potentially because returning to work is challenging (Franche et al., 2007). Such challenges are numerous when returning to work with recently-acquired SCI, as RTW plans are enacted in the context of ongoing adjustment and rehabilitation. Therefore, the action phase is vulnerable to relapse, or withdrawal from work (Franche & Krause, 2002; Prochaska, 2008). EIVR works to proactively plan for and mitigate challenges, to the extent that they can be planned for or mitigated, to support the person during this vulnerable stage.

6.1.1.3.5 Maintenance stage.

Due to the relatively brief longitudinal follow-up period of this study, there was limited opportunity to explore the maintenance stage of change. Theoretically, this stage would involve strategies to assist the individual to maintain the outcomes gained (Franche & Krause, 2002;
Prochaska, DiClemente & Norcross, 1992). Within VR, this means prevention of future job loss, undesired decreases in working hours or other factors that threaten the long-term career trajectory (Rubin & Roessler, 2008; Buys, Hensby & Rennie, 2003). Potential tasks for the RC in this stage might include promoting ongoing career management skills such as job seeking skills development, identifying a mentor, accessing labour market information, seeking out professional development (Bridgstock, 2009; Buys et al., 2003) and providing information on where the person could access services if they needed guidance in the future.

Franche and colleagues (2007) further differentiate between uncertain and proactive maintenance. Proactive maintainers are said to be successfully re-adapting to work despite some challenges, whereas uncertain maintenance is characterised by struggle and distress (Franche et al., 2007). Both participants who had returned to work in this study were proactive maintainers, expressing confidence at their ability to maintain their work situation despite some uncertainties. These participants make an interesting contrast against Participant 3, who had returned to some of his pre-injury activities but did not consider himself employed. The key difference was the perception of available support; the RTW participants described numerous formal and informal supports, whereas Participant 3 had unmet support needs. This contrasts with Franche et al’s (2007) finding that physical functioning or pain was the major barrier to proactive maintenance. Perhaps the additional support enjoyed by the RTW participants mitigated such issues and promoted feelings of confidence and optimism about the maintenance of RTW. Given the limited longitudinal follow-up of the current study, further research is needed to explore the maintenance stage more comprehensively.

6.1.3.6 Relapse.

The final stage in the SOC model is the acceptance of relapse into old behaviours as a normal phenomenon in the change process (Prochaska, 2008; Prochaska et al., 1992). Although this is less relevant to RTW, it is important to note that a person can move between stages,
including ‘backwards’, or pause at any stage (Prochaska, 2008). The findings indicated that it was common to pause the RTW plan when new gains were made in physical function, RTW goals changed or health complications developed. Participants reported that the RC provided a sense of security in stepping away from the RTW program when needed. This emphasises the role of the RC in supporting the broader rehabilitation agenda. Participants could commit to other aspects of their life without fearing that RTW goals were being left behind.

**6.1.1.4 Implication for practice.**

Considering RTW as health behaviour change within the framework of the SOC model has the potential to enhance VR practice in two key ways. First, it allows the practitioner to conceptualise the person’s level of motivation and understand the cognitive processes that may underpin their engagement with the RTW program. Second, the SOC model provides targets for VR intervention, as interventions tailored to the person’s stage of change are known to be more effective (Rollnick & Miller, 1995). Once the practitioner has identified the stage that the person may be in, they can work with the person in a tailored, intentional way to promote motivation and momentum within the RTW program.

As mentioned above (Section 6.1.1.3), Motivational Interviewing is predicated on TTM theory, and is used by practitioners to assist clients to move through the stages of change (Rollnick & Miller, 1995). MI is a collaborative, non-confrontational counselling approach based on the SOC model that elicits the person’s intrinsic motivation to change through the use of reflective questioning (Miller & Rollnick, 2013). Motivation is brought about by raising awareness of and encouraging reflection about the congruence of the person’s actions with their overall values and life goals (Miller & Rollnick, 2013; Rollnick & Miller, 1995). MI is increasingly used within VR due to the broad body of literature that supports the relationship between motivation and employment outcomes (Manthey et al., 2011; Page & Tchernitskaia,
2014), and has been applied in the EIVR setting (Middleton et al., 2015). The findings of the current study further support the extension of the SOC model into EIVR.

Consistent with the MI approach, the findings indicate that the major role of the RC throughout all stages is to promote empowerment and self-determination. This is achieved through a self-efficacy raising and hope-inspiring approach and through more concrete tasks like advocating, liaising with employers, vocational counselling and sourcing assistive technology. Table 6 provides an overview of the job functions of the RC throughout the different stages.
<table>
<thead>
<tr>
<th>Stage</th>
<th>Characteristics</th>
<th>Role/function of EIVR</th>
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| Precontemplation      | Preoccupied with physical situation  
|                       | Problem-focused  
|                       | Past-focused  
|                       | Grief, shock  
|                       | Work not possible  
|                       | Work is possible  
|                       | Optimism and growing confidence  
| Precontemplation      | Rekindle hope that work is possible  
|                       | Provision of info about services  
|                       | Gentle and non-invasive  
|                       | Ensure they know ‘it’s there when I need it’  
| Contemplation         | Often wants to change to a more meaningful career path, but unsure what that looks like  
|                       | Not focused on logistics  
|                       | Motivated  
|                       | Short-term goals are set  
|                       | Long-term goal usually less defined  
|                       | Greater awareness of logistical issues involved with RTW  
|                       | Both needs and barriers solidify as work moves closer  
| Preparation           | Finances may become an issue (either motivator or sudden relief due to DSP approval)  
|                       | Can coincide with community reintegration—can move back to contemplation stage as functional limitations come into contact with inaccessible environment  
|                       | Graded RTW  
|                       | Often very busy balancing work, rehabilitation and social life  
| Action                | Fatigue a potential pitfall here  
|                       | Can be suddenly interrupted by rehabilitation gains  
|                       | Working from home sounds ideal but can interfere with connectedness to workplace/colleagues  
| Maintenance           | Reasonably settled  
|                       | New rehabilitation gains even now can suddenly put the plan on hold  
| Maintenance           | Monitoring/evaluation  
|                       | Linkage to local services  
| Maintenance           | Goals need to be constantly evaluated and reset to prevent despondency and promote forward momentum  
| Maintenance           | Case closure  
| Maintenance           | Linkage to external/local services  

Table 6

Job Functions of RCs throughout the SOC Model
Common criticisms of the SOC model focus on the somewhat arbitrary boundaries associated with each stage (Littell & Girvin, 2002; West, 2005). Given that the stage a person is said to be in relates to underlying processes that are difficult to access, it is difficult to say at which point a person moves from one stage to the next (Littell & Girvin, 2002; West, 2005). This implies difficulty in operationalising these stages for research. It is challenging to objectively categorise participants into discrete stages (Littell & Girvin, 2002). It can also be argued that adjustment to disability is not a linear process (Kendall & Buys, 1998). However, proponents of the SOC model assert that people can move backwards and forwards through stages dynamically to reflect non-linear change (Prochaska, Redding & Evers, 2015). Regarding RTW specifically, SOC theory aligns with other stage-based theories of career development in that it does not consider contextual variables such as the availability of suitable work, accessibility of the work environment or attitudes of prospective employers (Sonnenfeld & Kotter, 1982). Age, race, socio-economic status, gender, disability and other such variables affect a person’s ability to gain employment, whereas SOC theory was originally developed for substance use issues, which are arguably within the client’s personal power to change, such as smoking cessation (Prochaska et al., 1992). Given that RTW is heavily context-dependent, SOC theory is limited in its research applications to explain variances in RTW outcomes.

Despite these limitations, the SOC model remains a prevalent theory of health behaviour change and informs the use of MI, which has shown promise in the VR sphere (Middleton et al., 2015). The current study’s findings closely mirrored conceptualisations of the SOC model, particularly in describing the cognitive processes associated with each stage. It is argued that the limitations of the SOC model within VR relate primarily to the dynamic
nature of adjustment after acquired disability, which is difficult to capture in research, and that concrete distinction of each stage is unnecessary for the SOC model to inform practice. Conceptualising the client’s attitudes and motivations within the broader continuum of stages could potentially enable practitioners to target interventions sensitively, a key consideration of working with newly injured people. Further, the limitations that context places on the predictive power of the SOC model within VR align with those of most career development theories, and could potentially be bridged by the provision of EIVR to address contextual barriers to employment.

6.2 Perspectives on EIVR

This section synthesises the themes relating to EIVR after SCI, and participants’ perceptions of the EIVR service. The study confirmed the value of EIVR within the primary rehabilitation setting, with hope and empowerment identified as key benefits. The study addressed the gap in the literature concerning the consumer perspective of EIVR, with participants identifying both the benefits of EIVR and potential barriers to the success of the program. The data also shed light on the value of VR interventions for this population, with information provision, planning, goal setting and vocational counselling the key job functions reported by the consumer, supporting the inclusion of specialised VR services in the primary rehabilitation setting. Research is needed to further refine EIVR services, particularly in determining and responding to people’s support needs post-EIVR.

6.2.1 Facilitating hope in the face of uncertainty

Early rehabilitation and RTW after SCI seemed to be characterised by a sense of uncertainty about the immediate future, employment preferences and prospects, available supports, and ongoing physical rehabilitation. Contrasting with the sense of uncertainty was a sense of hope, and a feeling of optimism that vocational goals would inevitably be achieved. Facilitating hope about the possibility of future work is a key element of EIVR programs, the
idea being that just the presence of VR within primary rehabilitation communicates to consumers that work is possible (Hilton et al., 2017; Ramakrishnan et al., 2016). The findings expanded on this idea, highlighting a concurrent theme of possibility; the uncertainty of the future was reframed as an opportunity to entertain occupational daydreams and right the wrongs of the pre-injury career trajectory. The utilisation of coping strategies like positive reframing underpins hopefulness post-SCI (Dorsett et al., 2017), and the findings suggest that EIVR facilitates positive reframing, with participants indicating that EIVR had been instrumental in providing clarity and instilling optimism during initial rehabilitation.

In addition to positively reframing uncertainty, EIVR worked practically to reinforce hope. In accordance with Snyder’s (2000) conceptualisation of hope, EIVR promoted pathways thinking by assisting participants to break large goals into smaller steps and strategies to overcome barriers. The findings indicated that pathways thinking is potentially further reinforced in EIVR through the use of assistive technology, job accommodations and similar strategies to creatively address barriers to the stated goals. These strategies also bolster agency thinking, or the belief that the person can achieve their goals (Snyder, 2000).

6.2.2 Enhancing engagement.

EIVR promoted engagement with the rehabilitation program by enshrining meaningful work as a key goal of rehabilitation. The Phase 2 systematic review identified that paid work is considered the ultimate goal and other forms of vocational activity (study or volunteering) are not conferred the same status. This is perhaps unsurprising, given that working in Western society is intrinsically linked with notions of self-reliance and citizenship (Dickie, 2003). Participants’ identification of independence as a key driver in their RTW aligned with this notion. However, participants were more concerned with the qualities of the work itself, suggesting that meaningful work is that which is in keeping with their life goals, their values, or how they see themselves.
Participants were generally driven by the pursuit of meaningful work – either returning to pre-injury work, or seeking new career trajectories. Meaningful work was distinct from other work; it was interesting, challenging, expressing the person’s values or self-concept and pursuing long-held passions. Work that affirms one’s self-concept, enables the expression of one’s values, and provides opportunities to overcome challenges is said to be deeply meaningful (Rosso et al., 2010) and therefore motivating (Chalofsky, 2003). Theories of motivation hold that intrinsic goals that align with a person’s values and aspirations are more motivating than goals that are externally imposed (Deci & Ryan, 2010; Ryan & Deci, 2000). Meaningful work is said to be deeply intrinsically motivating (Chelofsky, 2003), satisfying many intrinsic drives, including the need for competence, self-expression, purpose, and authenticity (Rosso et al., 2010). This was the case in the current study, as participants were motivated by the goal of obtaining (or re-obtaining) meaningful work. EIVR promoted meaningful work as a key goal of rehabilitation, and participants valued and were motivated by that goal. Therefore, enshrining meaningful work as a primary rehabilitation goal potentially reinforces engagement with the broader rehabilitation program.

### 6.2.3 Services provided.

Participants described varied EIVR services tailored to each person’s specific areas of need. In terms of their perceived usefulness, vocational counselling, information provision, linkage to services, goal setting and planning, and liaison with employers were the most commonly nominated functions. Given the sensitive nature of working with newly injured people, it seems that counselling skills were also important. Although counselling skills were not specifically discussed by participants, the warm tone of all participants when discussing the vocational professional suggested a strong rapport, ostensibly implying the use of interpersonal skills. Previous research indicates that similar functions were nominated by EIVR practitioners themselves, who indicated that vocational counselling, career guidance,
knowledge of services and counselling skills were vitally important when working with this population (Ramakrishnan et al., 2016). These findings, combined with research that supports the clear need to address vocational issues within the primary rehabilitation setting (Bloom et al., 2017; Fadyl & McPherson, 2010), support the inclusion of specialised VR services within the broader multidisciplinary rehabilitation program.

These functions also mirror those identified in prior Australian research that reported vocational counselling, personal counselling, rehabilitation case management and disability case management as key functions of RCs (Matthews, Buys, Randall, Biggs & Hazelwood, 2010). It seems that the combination of the VR and counselling skills of RCs is particularly suited to effectively providing an EIVR service within the multidisciplinary team of the SCI rehabilitation hospital.

6.2.4 Timeliness.

The appropriateness of the early timing of EIVR was questioned during its inception due to the traditional belief among SCI practitioners that VR could be overly burdensome during primary rehabilitation (Johnston et al., 2016). However, recent research indicates that this may not be the case, with findings supporting that people may be ready to engage with VR substantially earlier than previously thought (Fadyl & McPherson, 2010; Middleton et al., 2015). Indeed, the lack of VR was identified as a service gap and presented an opportunity to better support people during primary rehabilitation (Bloom, Dorsett & McLennan, 2017). The current study found that some people are ready to engage with VR within weeks of the injury, aligning with results found in the emerging EIVR literature base (Ramakrishnan et al., 2016). The findings of the current study underscore that EIVR is appropriate and potentially advantageous during early rehabilitation, promoting hopefulness and supporting engagement with the broader rehabilitation program.
Although most participants reported that the timing of EIVR was ‘about right’, the findings also indicated that plans made pre-discharge could at times be unrealistic or unsustainable once the person returned to the community. The complexity of RTW after SCI is well documented (Hilton et al., 2018; Lidal, Hjeltnes, Roislien, Stanghelle & Biering-Sorensen, 2009), and RTW after a newly acquired injury may be delayed due to the focus on the intensive rehabilitation process. Nonetheless, it seemed that just the process of planning the RTW was itself beneficial when considered separately from the plans. Evidence suggests that comprehensive goal setting and planning can promote feelings of self-efficacy (Azizli, Atkinson, Baughman & Giammarco, 2015), a finding echoed in the current study. These findings underscore the benefits of EIVR in promoting feelings of confidence and hopefulness, while also highlighting the need for ongoing monitoring and linkage to community-based services to ensure the continual, supported revision of VR plans.

6.2.5 Linkage.

Linkage to external, community-based VR services post-discharge is key to preserving gains made in EIVR. The often fluctuating health situation of people with SCI, combined with the tendency of EIVR participants to engage in casual, seasonal or contract work (Middleton et al., 2015), means that ongoing engagement and monitoring of clients is pivotal in preventing backsliding or stagnation of the RTW trajectory. The findings of the current study support that strong referral pathways may be impeded by the geographical location of the participant. Rural or remote communities report experiencing barriers to accessing disability services that include longer waiting lists, lengthy travel times and increased physical barriers within the environment (Dew et al., 2013; Gething, 1997; Middleton et al., 2008). Linkage to services was also impeded by unclear eligibility requirements and changing services in the Australian disability context. The introduction of the NDIS means that disability services in Australia are a changing landscape, and some participants reported difficulty accessing work-related supports through
this system. These barriers to community-based services were the most prominent obstacles to RTW evident in this study, and potentially undermined VR progress made during EIVR.

6.3 The mechanisms of EIVR

The underpinning mechanisms of EIVR were conceived in the Phase 1 background research, conceptualised in the Phase 2 systematic literature review, and supported by the findings of the Phase 3 qualitative project. EIVR interventions, particularly the Back2Work program, are driven by two overarching processes; preservation of the occupational bond, and empowering the consumer. The following section considers occupational bonding and empowerment, underscoring the utility of these concepts in explaining both the benefits of EIVR and its processes.

Traditional conceptualisations of the occupational bond broadly suggest interventions that support the person’s relationship with their pre-injury employer (Shrey 1996). The expanded model developed and presented in this project (Sections 3.1 & 5.6) highlights additional targets for VR intervention, particularly for people who are unable to RTW in the short term. The findings also suggested potential challenges to the occupational bonds of people with newly-acquired SCI, including the uncertainties that characterise early rehabilitation, and the potential for lengthy work absences.

6.3.1 Occupational Bonding

One of the primary mechanisms by which EIVR promotes successful employment outcomes is maintenance of the occupational bond. Prior to this study, the occupational bond was conceptualised primarily as the relationship between the person and their employer. Phase 2 of the current study extended the theory to also encompass the person’s relationship to the world of work more generally, and this conceptualisation was supported in Phase 3. Thus, the occupational bond was supported as having two major aspects: the person’s relationship with their employer, and their attachment to work. This attachment includes a values component
(i.e., a person should work) and an identity component (i.e., I am a worker). This expanded conceptualisation is discussed in more detail below.

**6.3.1.1 Work-related social contact**

Occupational bonding theory holds that a person can be psychologically bonded to their employer (Shrey, 1996). Theoretically, a strong occupational bond predicts a person’s desire to RTW, and therefore, their engagement with RTW programs (Shrey, 1996). This preservation is believed to be accomplished through early, positive contact between the injured worker and their supervisor (Selander, Tjulin, Müssener & Ekberg, 2015; Westmorland & Buys, 2004). The data indicated that a person with a pre-existing, strong occupational bond to their employer is likely to welcome early contact with the employer to keep them informed of their progress during rehabilitation. The data also supported the utility of this contact, suggesting that early communication provides the worker with a sense of security, reinforces the salience of work and enables early strategising and modification of the work environment. In this study, employers promoted strong occupational bonds during work reintegration by remaining approachable and flexible, and endorsing a positive workplace culture regarding job accommodations and worksite modifications. This mirrors prior work in this area that highlighted the role of the supervisor in creating a flexible and supportive work environment, thereby facilitating job satisfaction (Miller, Gottlieb, Morgan & Gray, 2014) and work commitment (Rhoades & Eisenberger, 2002).

It was clear in the data that flexibility and approachability on the employer’s part is key in maintaining occupational bonds. However, there are key factors that may challenge an employer’s willingness or capacity to be accommodating. The need to sometimes pause RTW plans due to gains in physical rehabilitation or fluctuating health concerns could present challenges to employers of people with newly-acquired SCI, producing tension between supporting the employee and ensuring ongoing productivity (Young et al., 2005). Due to the
relatively low incidence of SCI in Australia (Tovell, 2020), employing someone with this injury is likely to be the first time many employers have directly encountered SCI and its associated challenges. Employers may also be working with limited resources and limited knowledge of available supports (Coole et al., 2013). These factors present a barrier to collaboration with the worker, and a clear role for EIVR intervention to preserve occupational bonds. The findings supported this role; participants highlighted that the RC supported the employer by providing information to the employer, assisting the worker to formulate plans for discussion with the employer, and liaising with employers to negotiate workplace accommodations and supports. In this way, EIVR was able to mitigate the effects of uncertainty that is characteristic of newly-acquired SCI and preserve pre-injury occupational bonds.

6.3.1.2 Vocational identity

The model of occupational bonding that emerged from participant data also included psychological factors intrinsic to the injured worker. These factors could influence the salience of work and/or the person’s propensity to form strong occupational bonds, and therefore, could underpin their motivation and engagement with RTW programs. Organisational psychology research has described various bonds to different components of work, including the working team, the job itself and the broader career (Cooper-Hakim & Viswesvaran, 2005; Randall & Cote, 1991). Similar concepts including work ethic, job involvement, career salience and work attitudes have been linked to these bonds (MacKenzie et al., 2006; Nilsson, Olsson, Wennman-Larsen, Petersson & Alexanderson, 2013; Randall & Cote, 1991), highlighting the potential involvement of an attitudinal or values-based component related to occupational bonds. Valuing work seemed to underpin motivation and engagement with VR, potentially by enhancing the salience of work. A person with a strong psychological connection to the idea of work is perhaps more likely to include work-related goals within their rehabilitation program. These findings affirm those of Hay-Smith et al. (2013), aligning with the notion that
identification of oneself as a ‘worker’ may be capitalised upon to maintain motivation during VR.

The findings implied that this attachment to ‘working’ (rather than to specific jobs or employers) were formed over the person’s lifetime. Attitudes towards work are created and influenced in childhood, and reinforced by social or cultural norms (Thrasher & Bramble, 2019). Participants in this study explicitly addressed these norms, indicating that working was part of returning to ‘normal life’, in keeping with Australian attitudes towards employment that value economic productivity and self-reliance (Schofield & Butterworth, 2015). The valuing of work was further underpinned by strong vocational histories; participants were driven to RTW because they had always been ‘workers’. This positive contact with the world of work contributes to vocational identity development (Blustein et al., 2000; Super 1980) and work role salience (Greer & Egan, 2012), ultimately reinforcing strong occupational bonds.

That occupational bonds are created and reinforced over the lifespan implies a potential area of vulnerability for the occupational bonds of people with SCI. If people are unable to return to work, then lack of positive contact with the world of work may diminish work salience over time, undermining the person’s connection to the world of work. Indeed, lengthier absences from work are associated with diminished likelihood to return as the person becomes deconditioned and ‘distanced’ from the labour market (Waddell & Burton, 2004). This distance may contribute to unhelpful perceptions about work, as was the case in the current study for Participant 6, who was the most distanced from work, and who expressed disbelief that anyone would hire a person with SCI. Perceiving that opportunities are limited or unequal can impact the importance of work (Niles & Goodnough, 1996) and present a barrier to RTW (Burns et al., 2010). Thus, a key task of EIVR in supporting occupational bonding is reinforcing both the possibility and salience of work.
6.3.1.3 Utility within EIVR.

The broader model of occupational bonding presented above provides multiple avenues for intervention, both for clients returning to the pre-injury employer and those who cannot. The data suggested that ensuring early, supportive contact with the employer promoted this relationship. Provision of information on job accommodations was also valuable and ensured a smoother transition back into the workplace. Connections to the world of work in general can be reinforced for those who are unable to return to the pre-injury employer. The salience of work can be reinforced with the integration of VR within the primary rehabilitation program (Johnston et al., 2016), and the person’s connections to the world of work may be preserved through professional development activities, mentoring, volunteering and communicating with pre-injury colleagues. Overall, the occupational bond underpins the salience of work in a person’s life, and supporting this bond reinforces this salience. Conceptualising the occupational bond as a construct involving both work-related social support and intrinsic psychological factors enables multiple targets for intervention, facilitating engagement with the RTW program and enhancing RTW outcomes in the long term.

6.3.2 Empowerment and SCI: Psychological Factors

Empowerment is a multifaceted construct incorporating intrinsic and extrinsic or contextual components (Fawcett et al., 1995; Zimmerman, 2000). The literature review identified that intrinsic psychological resources could be reinforced within the VR context. These resources include a positive future orientation, positive appraisals of one’s own resources and motivational factors (Breeding, 2008; Zimmerman, 2000). Findings of the current study supported the impact of EIVR on these factors, particularly hope, self-efficacy and motivation, suggesting that EIVR can be psychologically empowering during a stage when participants may feel disempowered. This section explores the psychological factors underpinning empowerment and outlines the role of EIVR in reinforcing these. Further, it discusses the
contextual component of empowerment within EIVR to conclude that an empowerment framework of EIVR promotes intrinsic resources and removes barriers while also reinforcing wellbeing and adjustment after SCI.

6.3.2.1 Hope

Research has underscored the importance of hope after SCI. Hope is believed to promote positive coping (Dorsett, 2010; Kennedy, Lude & Taylor, 2006; Smedema, Catalano & Ebener, 2010), adjustment (Chan, Chan, Ditchman, Phillips & Chou, 2013; Dorsett et al., 2017), participation (Chan et al., 2013), resilience (Monden et al., 2014), social integration (Kortte et al., 2012), life satisfaction (Krause & Edles, 2014), subjective wellbeing (Smedema et al., 2010) and reintegration into the community (Brazeau & Davis, 2018). Hope appears to have a protective effect against less-effective coping styles (Dorsett et al., 2017) and psychological phenomena like depression and anxiety (Kennedy, Evans & Sandhu, 2009). Higher levels of hope may also be linked to the regaining of employment (Kortte, Stevenson, Hosey, Castillo & Wegener, 2012; Krause & Pickelsimer, 2008). Thus, reinforcing hopefulness within the VR context may serve the dual functions of promoting coping and adjustment, and facilitating employment.

There is tension within rehabilitation literature about managing patients’ hope, primarily concerning confronting denial while avoiding hopelessness. Historically, hope was thought to be related to acceptance, with unrealistic hopes indicating a lack of acceptance of the injury and its consequences (Soundy, Sayers, Stubbs & Roskell, 2014) and the prelude to massive disappointment (Wiles, Cott & Gibson, 2008). However, so-called false hope has been found to promote positive coping and adjustment post-SCI (Dorsett, 2010; Dorsett et al., 2017). This is perhaps because acceptance is multifaceted—a person can accept their changed physical body while rejecting a changed self-identity (Soundy et al., 2014). Lohne and Severinsson (2004) suggested that the process of hope is more important than the subject of the hope,
meaning that even unrealistic hopes may promote motivation. This was evident in the current study. Participants reported early feelings of confidence that they later characterised as unreasonable or irrational, but nevertheless these feelings protected them from despondency. EIVR potentially capitalised on these early hopes by focusing on the possible rather than the impossible, and breaking what may have been considered ‘unrealistic’ work-related hopes into smaller, more achievable goals.

6.3.2.2 Self-efficacy

The various empowerment theories are united in nominating self-efficacy as a key component of psychological empowerment (Fawcett et al., 1995; Kosciulek, 1999, 2004; Spreitzer, 2008; Zimmerman, 2000). Evidence suggests that self-efficacy is a predictor of RTW across injury populations, particularly for people with mental health issues (Etuknwa, Daniels & Eib, 2019; Lagerveld, Brenninkmeijer, Blonk, Twisk & Schaufeli, 2017) and musculoskeletal conditions (Black, Keegel, Sim, Collie & Smith, 2018; Brouwer et al., 2011). However, the post-SCI literature is mixed, with the added variable of often permanently diminished physical functioning and subsequent highly visible disability further potentially moderating the relationship between self-efficacy and RTW (Middleton, Tate & Geraghty, 2003; Murphy, Middleton, Quirk, De Wolf & Cameron, 2011). This was evident in the current study, with physical recovery, ambulation and the accessibility of the environment affecting participants’ confidence and the RTW process directly. Nonetheless, high confidence levels seemed to protect participants from despondency, highlighting the continued utility of self-efficacy-enhancing efforts in EIVR. EIVR promoted self-efficacy in three key ways: the provision of information, detailed goal setting and planning, and organisation of worksite visits. These functions promoted positive outcome expectations and gave the opportunity for mastery experiences—two key sources of self-efficacious beliefs (Bandura, 2010; Bandura & Schunk, 1981).
6.3.2.3 Motivation

Participants’ RTW motivation was generally high, with a notable decline in the event of financial relief. Some researchers claim that welfare or insurance benefits ‘disincentivise’ RTW (Marini, Lee, Chan, Chapin & Romero, 2008). While, ostensibly, this seems to be the case, considering the findings in light of empowerment theory reframes the impact of financial relief on RTW motivation. Organisational psychology research holds that empowerment is an intrinsic motivational state. Relating to the work domain, this means that alignment of one’s values with one’s work role promotes psychological empowerment, thereby increasing motivation (Spreitzer, 2008). If the job role is not meaningful to the person, they will be less empowered, and thus, less motivated (Spreitzer, 2008). Prior VR research also supports this notion, suggesting that aligning life goals with VR goals promotes motivation (Nair, 2003). This accounts for the sudden decrease in RTW motivation observed when a participant experienced financial relief in the current study. When financial pressure was relieved, RTW motivation appeared to decline, as the short-term job seeking in which participants were engaged was not aligned with their personal values and aspirations. Intrinsic motivation, or that which is in sync with personal values, is associated with stronger employment outcomes, particularly job satisfaction (Baard, Deci & Ryan, 2004). Rather than disincentivising participants, relief from financial strain may give participants space to pursue meaningful goals that have a higher likelihood of success in the long term.

6.3.2.4 The empowerment puzzle

Empowerment theories within VR suggest that an ‘empowered’ consumer possesses several underlying characteristics, discussed above, usually relating to the person’s capacity and willingness to make independent choices (Fawcett, 1994; Zimmerman, 2000). These underlying domains – self-efficacy, hope, and motivation – are themselves resources that promote coping and adjustment after SCI. This psychological component of empowerment is
complemented by a contextual perspective, considering the aspects of the external environment that might be disempowering. EIVR both promotes psychological resources and works in-context to dismantle barriers that prevent RTW, therefore empowering consumers.

Hope, self-efficacy and motivation are all associated with increased psychological empowerment (Zimmerman, 2000). However, their relationship to RTW outcomes post-SCI is often less clear. This is potentially because employment is heavily context-dependent. The contextual component of empowerment highlights that the environmental, social and political contexts in which a person operates may be disempowering (Fawcett et al., 1995; Zimmerman, 2000). This dimension of empowerment has been conceptualised as person–environment fit, or the extent to which the environment is compatible with the person, and its capacity to meet the person’s needs (Fawcett et al., 1995). This incompatibility may occur as a result of restricted opportunities, lack of resources or limited knowledge of resources, legislation or policies, discrimination, lack of social support and/or poverty (Fawcett et al., 1995). Conversely, empowerment may be promoted through the removal of these barriers or increased access to resources. The findings of this study align with this theory, indicating that EIVR helped overcome barriers through liaising with employers, locating assistive technology and negotiating job accommodations. In this way, EIVR promoted person–environment fit, bridging the elements of the work context that were incompatible with the person. The provision of knowledge about service availability and eligibility also enhanced participants’ ability to navigate services, or ‘savvy’ (Kosciulek, 1999), building participants’ capacity for independent navigation of these services in the future.

6.3.2.5 Empowerment framework

Empowerment theory captures the complexity of VR, considering both internal psychological factors and external contextual factors and how these interact (Breeding, 2008; Kosciulek, 1999). The clear relevance of empowerment theory to EIVR suggests the potential
utility of an empowerment-based VR framework, wherein VR incorporates intrinsic components to build self-efficacy, hope and motivation, and works to bridge disempowering contextual factors. An empowering EIVR strategy could promote subjective well-being, coping and adjustment after injury, given that hope and self-efficacy have both been shown to support these outcomes (Dorsett et al., 2017; Hampton, 2004; Peter et al., 2012). Peter et al. (2012) identified relatively few interventions targeted at strengthening psychological resources after SCI, highlighting a potential gap in service provision that EIVR could fulfil. Further research is needed to operationalise and validate the use of an empowerment framework within EIVR, and demonstrate the utility of this framework in supporting coping and adjustment after SCI.

6.4 Chapter Summary

This chapter discussed the findings in the context of the relevant literature, exploring the potential for the transtheoretical model to explain the motivational and attitudinal changes a person undergoes when engaging with VR and preparing to RTW after an SCI. This chapter examined the evidence for the occupational bond, which is a key justification for early intervention VR services. While some evidence was found to suggest a bond with the employer, arguably more intriguing was the evidence for a psychological component to this bond. It seemed that a person’s valuing of work and self-identity as a worker also reinforces RTW, and can be reinforced when RTW is unfeasible in the short term. Empowerment was also explored, highlighting the role that empowerment variables such as self-efficacy, hope and motivation play in supporting a person’s RTW, while also suggesting that EIVR can mitigate contextual barriers, building capacity and facilitating empowerment during a period of self-perceived disempowerment. These conceptual frameworks form the underpinning mechanisms for EIVR, promoting both employment success and participant wellbeing. Finally, Chapter 7 summarises the project, and describes the strengths and limitations of the research and the implications for research, policy and practice.
Chapter 7: Conclusions

The aim of this thesis was to explore what the return to work journey is like from the perspective of people with newly-acquired spinal cord injuries, and to describe the influence of EIVR on their journey. The project addressed this aim in three phases: background literature research, a systematic quantitative literature review, and a qualitative study. These phases, their contributions to the research objectives, and their implications, are discussed below.

The Phase 1 background literature review was conducted to summarise the evidence for EIVR, which was still emergent at the time of publication, as it pertained to the Australian context. This was intended to inform the development of the project. The background review highlighted that early intervention is a VR best practice (Murphy, 2009), underscoring the vocational needs and potential of people with newly-acquired SCI and the utility of EIVR in addressing these needs and capitalising on this potential. There were conceptual frameworks identified that were implied as underpinning EIVR, including the preservation of the occupational bond and supporting psychological wellbeing. There were also pervasive methodological and reporting inconsistencies identified in the research that undermined comparison of data and made it difficult to know what was considered a successful employment outcome for people with SCI. It seemed that more comprehensive investigation would better inform the development of the qualitative project, both in terms of refining the methodology and in providing conceptual frameworks. Seven research objectives were developed on the basis of the background review and addressed in the subsequent phases of the research.

7.1 Objectives 1 and 2

Objectives 1 and 2: Explore what makes a “successful employment” outcome after SCI, and investigate the methods and populations used in the literature about employment after SCI to identify research gaps and inform the development of future research.
As there were pervasive methodological inconsistencies that undermined conclusions about employment after SCI, Phase 2 comprised a systematic literature review to summarise the extant literature in terms of its methods, measures of employment, and population demographics (Chapter 2), and to identify the conceptual frameworks that underpin EIVR (Chapter 3). The systematic review analysed 150 studies in total, utilising a systematic quantitative review method adapted from Pickering and Byrne (2014).

A lack of consistent reporting of demographic factors, particularly time since injury and race, and limited specificity in definitions of employment, pervaded the published research. While variations of employment definition existed, consensus was that a successful outcome was any amount of paid employment. Other pertinent indicators of outcome quality were often overlooked in the literature, such as job satisfaction and number of hours worked. Participants’ perspectives of what constitutes successful employment were identified in the Phase 3 qualitative study. Participants’ views echoed the conclusions of the systematic review in calling for more meaningful measurement of employment outcomes. Meaningful work was more challenging, interesting, and in keeping with the person’s values or self-concept. The adequacy of remuneration in meeting the person’s financial needs was also important given the impact of financial strain on quality of life. While rate of employment remains the ‘gold standard’ measure, the systematic review and the qualitative study both underscored the importance of broad quality indicators in assessing employment success, in order to ensure that employment outcomes are actually meeting consumers’ needs.

7.2 Objective 3

Objective 3: Explore the concept of occupational bonding within EIVR, and identify ways that this bond may be supported when challenged by SCI.

The Phase 1 background review implied key mechanisms that underpin the success of EIVR. Maintenance of the occupational bond, as conceptualised by Shrey (1996), was
highlighted as key justification for early intervention, suggesting that EIVR may prevent the loss of jobs or careers and therefore facilitate an earlier RTW. The Phase 2 systematic review was re-interrogated to identify the nature of occupational bonding post-SCI and provide targets for EIVR to support such bonds.

The Phase 2 systematic review affirmed that the occupational bond is a mechanism by which EIVR facilitates employment outcomes. EIVR potentially reinforces this bond by existing within the primary rehabilitation setting—the presence of VR alongside the primary rehabilitation program communicates to consumers that work is possible after SCI, and can occur sooner after the injury than they might have thought (Johnston et al., 2016). As EIVR progresses, the RC works with the person, and their employer where appropriate, to preserve and capitalise upon pre-injury relationships, potentially the key intervention involved in the ‘fast track’ back to work as suggested by Krause and colleagues (2010). For people unable to RTW to the same employer, EIVR may reinforce the salience of work in the person’s rehabilitation program and support their continued self-identity as a remunerated worker, which may in turn promote hopefulness and continuing engagement with the VR program (Hay-Smith et al., 2013).

The Phase 3 data analysis supported the expanded model of occupational bonding, with participants suggesting that the valuing of work was motivating in their RTW program, and in engaging with broader rehabilitation goals. The findings indicated that occupational bonds were formed over the lifespan through socialisation and contact with the world of work. EIVR supported occupational bonding when it was challenged by SCI, by reinforcing that work continued to be both worthwhile and achievable.

7.3 **Objective 4**

Objective 4: Investigate the role of psychological resources such as hope in EIVR, and identify how EIVR works to support these variables.
The Phase 1 background review indicated that EIVR may also support psychological resources and improve overall wellbeing in addition to facilitating RTW. Hope, self-efficacy, and motivation were well-supported in their relationship to both employment outcomes and overall wellbeing post-SCI. These concepts were unified under an empowerment framework, focusing in Phase 2 on psychological empowerment specifically. The Phase 2 systematic review supported the usefulness of an empowerment perspective within EIVR, indicating that the facilitation of hope, self-efficacy and motivation within EIVR potentially works to mitigate the challenges to psychological wellbeing experienced in early rehabilitation while also promoting vocational goal setting and achievement.

The empowerment framework was supported in the Phase 3 qualitative study, with participants particularly appreciating the hope-inspiring aspect of EIVR. Work was considered a meaningful goal to orient overall rehabilitation, enhancing participants’ motivation to participate in their rehabilitation programs. While there may be a tendency among rehabilitation professionals to discount employment as a less immediate need, and therefore less important than physical and psychosocial rehabilitation, the empowering benefits of EIVR seem to correspond to rehabilitation goals of facilitating adjustment and promoting forward momentum. EIVR appears to bolster hope and reinforce the inevitability of recovery, potentially improving the person’s psychological state and motivation to engage with rehabilitation. In this way, EIVR empowers consumers and is complementary to the broader rehabilitation program.

7.4 Objectives 5 and 6

Objectives 5 and 6: Explore how consumers who participated in an EIVR program describe their experiences of planning, seeking and/or returning to work, and identify barriers to these processes.
The Phase 3 study revealed two distinct RTW trajectories: returning to the previous employer (the ‘fast track’) or seeking new employment. For those on the ‘fast track’, capitalising on supportive relationships with their employers assisted participants in negotiating flexible work arrangements and job accommodations to support a graded RTW. Preservation of pre-injury employment is one of the key goals of EIVR (Hilton et al., 2017; Middleton et al., 2015; Murphy, 2009), and is the most common RTW pathway evident in the literature (Hilton et al., 2017), aligning with Krause and colleague’s (2010) conceptualisation of the ‘fast track’ back to work. Extending the pre-existing research, the current project elucidated the unique needs of these fast track participants. Specifically regarding returning to work, participants had a range of needs including facilitation of contact with their employer, negotiation of accommodations, supportive co-workers, and flexible work arrangements. More generally, there was a balancing act in simultaneously enacting a graded RTW, re-settling into homelife and the community, and undertaking physical rehabilitation. Increased support needs are likely as a result of the competing demands of these challenges, and the ongoing support of consumers who have achieved an early RTW is vitally important in preserving this success.

Participants who did not return to their pre-injury employment described a lengthier RTW journey, potentially because of the comparatively greater challenges and stressors involved in seeking new employment (Krause, 2003). These participants’ trajectories followed a staged process of increasing readiness to engage with VR and eventually RTW. Needs and goals changed across these stages, moving from the abstract to the concrete as RTW moved closer. These stages of readiness broadly corresponded to the transtheoretical model, or stage of change theory (Prochaska, DiClemente & Norcross, 1992), with distinct contemplation, preparation and action phases. The findings of this study indicate that some participants were in the preparation stage prior to discharge. That such an advanced stage of readiness and planning was achieved prior to discharge supports the benefits of EIVR in responding to and
facilitating early RTW readiness. Although describing readiness to RTW as a staged process is not without its methodological challenges, it is useful in conceptualising consumers’ outlooks and needs during EIVR, and for elucidating the processes that underpin readiness to RTW post-SCI.

Regardless of employment trajectory, participants often had to slow or pause their RTW plans due to the challenges of community reintegration, secondary health conditions, or the increased time commitment brought about by gains in physical rehabilitation. The resulting uncertainty presented the greatest barrier to RTW and threat to job retention. Other barriers included accessibility of both workplaces and navigating services, and the logistics of RTW. These barriers underscored the need for EIVR services to advocate for consumers, build capacity, reinforce optimism, develop flexible plans, and ultimately support the RTW process.

7.5 Objective 7

Objective 7: Investigate the VR processes that consumers perceive as most helpful in EIVR following SCI.

Participants were satisfied with the EIVR service overall, resonating with consumers’ viewpoints of similar services (Ramakrishnan et al., 2016). The major critiques of the service related to continuity of VR service provision and support post-discharge. There was a clear need for strong linkage pathways between EIVR and community-based employment services. Being a hospital-based service, the B2W EIVR program supported participants for a limited time post-discharge. Participants seemed to feel best supported when they were linked to a responsive community-based VR service or a workplace-based RTW coordinator. Taken together, the overarching themes of readiness, perspectives on EIVR, and the conceptual frameworks have key implications for the design and delivery of EIVR services. These relate primarily to the timing and intensity of interventions, as well as who the services should be offered to.
The findings of the current study supported the integration of EIVR within the primary rehabilitation team, as this integration promotes work as a worthy rehabilitation goal and promotes early engagement with services. This early engagement works to support occupational bonding, in line with current evidence supporting early intervention within VR practice (Hilton et al., 2017; Middleton et al., 2015; Murphy, 2009). EIVR reinforces the possibility of work and facilitates the establishment of employment as a rehabilitation goal, further promoting engagement. However, the early timing of EIVR potentially makes plans more vulnerable to sources of uncertainty, namely physical rehabilitation and fluctuating health concerns. Goals made in early rehabilitation may also be unsuitable when tested in the ‘real world’. These aspects make consistent post-discharge support extremely important for the success of EIVR; continued contact with the consumer, or linkage to community-based VR, needs to occur in order to readjust plans in the face of uncertain or unsuitable situations.

The themes of the current study also indicated that some VR interventions are more useful earlier in rehabilitation, and some later. Considering the key process of maintaining occupational bonds, the earliest aim of EIVR is to establish, or support the consumer in establishing, contact with their pre-injury employer. For those who are unable to RTW, the focus shifts to support or restore the possibility of working, reinforcing ability over disability, and possibility over uncertainty. These early interventions work in tandem to both preserve the person’s attachment to the world of work, and to foster hopefulness and self-efficacy. As readiness to engage in services increases, interventions may become more intensive and more targeted towards specific RTW goals – see Table 6 in Section 6.1.1.4 above. The dual utility of EIVR in supporting occupational bonds and facilitating empowerment underscores the importance of offering the service to all interested consumers. This is facilitated by the integration of EIVR within primary rehabilitation, enabling initial contact to occur informally, sensitive to the acuteness of this early stage of rehabilitation. Even if the person does not
subsequently engage with EIVR, the act of offering VR at this stage communicates to the person that work is possible, and encourages positive appraisals of the future.

7.6 Implications

7.6.1 Implications for Vocational Rehabilitation

7.6.1.1 Australian VR service provision

EIVR represents an extension of VR into primary rehabilitation. Traditionally, VR has existed in the community rehabilitation setting, which is primarily concerned with restoring independence and participation after onset of illness or disability (ILO, UNESCO & WHO, 2004). Extending VR into the primary rehabilitation context recasts VR as preventing the diminishing of independence by preserving careers before they are lost and mitigating the damage of long-term unemployment. This is a logical extension of the VR role, given that injury management best practice is to engage the injured worker in VR as soon after the injury as practicable (Franche et al., 2007; Heads of Workers Compensation Authorities, 2015); locating the VR service within the primary rehabilitation context achieves this aim. While a substantial amount of research has been conducted regarding the antecedents to employment after SCI, there is a clear need to refocus research efforts to better serve people with SCI given their persistently low employment outcomes. This could include developing larger, multisite intervention studies, or pooling interstate data, for greater chances of securing funding for EIVR initiatives that better address consumers’ needs.

VR service provision in Australia is a patchwork landscape comprising state, federal and private providers, all operating under varying legislation that shifts with the prevailing economic and political winds (Collie, Lane & Gray, 2018). Service users have indicated that the opaque and changing eligibility requirements make it a difficult territory to navigate (Kilgour, Kosny, McKenzie & Collie, 2015), a complaint echoed in the current study. The complex service landscape contributed to this issue; participants were eligible or ineligible for
different services depending on insurance status, criteria for Centrelink benefits or access to workplace-based injury management services. With the rollout of the NDIS, there is a need to map VR service usage patterns to identify barriers and improve consumer access to these services. Such research would also assist in facilitating links between EIVR and community-based services, mitigating a key area of vulnerability for EIVR participants highlighted in this study.

### 7.6.1.2 Rural and remote services

Linkage was of particular concern for the rural participant in this study, mirroring the issue of accessibility identified in other research into SCI (Middleton et al., 2008) and disability more generally (Dew et al., 2013). In this study, it was evident that access to services was insufficient in the participant’s rural location, an issue exacerbated by the increased logistical difficulty in transport post-SCI. Further, the participant felt that the EIVR providers did not understand his rural lifestyle, limiting the usefulness of plans made pre-discharge. Given that SCI is a low-prevalence condition, access to treatment and rehabilitation in Australia is concentrated in metropolitan centres, making equity of access to providers with SCI-specific knowledge an ongoing concern (Booth & Kendall, 2007; Middleton et al., 2008). This study echoes the calls of prior research for policy efforts to improve access to services in rural or remote communities by prioritising resourcing and upskilling of local providers to enhance injury-specific knowledge and skills and better prepare them to meet their communities’ needs (Booth & Kendall, 2007).

### 7.6.1.3 Vocational rehabilitation counselling

The practitioners delivering the B2W EIVR program were rehabilitation counsellors with postgraduate qualifications. As a profession, RCs are concerned with facilitating maximum inclusion of people with disabilities, injuries and other barriers within society, with employment the operationalisation of this inclusion (Strauser, Tansey & O’Sullivan, 2015). RC
role and function studies emphasise vocational counselling, workplace-based interventions, case management and labour market knowledge as among the key knowledge and skills of this profession (Matthews et al., 2010). In this study, participants indicated needs relating to labour market information, vocational decision-making, goal setting and liaison with employers. The RCs were well positioned to meet these needs given their specialist knowledge, skills and training, which were pivotal in supporting participants’ job seeking and RTW.

7.6.2 Implications for research

7.6.2.1 The role and perspective of the employer

Given that prior research has identified the important role of employers in reinforcing occupational bonds and facilitating RTW (Miller, Gottlieb, Morgan & Gray, 2014), identifying the needs of employers of people with SCI and how they can be best supported could also improve employment outcomes. In the current study, there was a pervasive sense that employers’ preconceived notions about disability affect a person’s ability to gain employment. The impact of supportive employers was also evident, highlighting the important role of employers in people’s RTW and job retention after SCI. VR research has shown that prejudicial attitudes present a barrier to employment for people with disability (Ameri et al., 2018) and that engaging employers is key to reducing these barriers (Murfitt, Crosbie, Zammit & Williams, 2018). However, most research about RTW after SCI, and with disability generally, focuses on factors relevant to the person rather than the employer. Therefore, future research should investigate the employers’ perspective with a view to identifying and mitigating employer-related barriers for people with SCI.

7.6.2.2 The question of financial relief

After SCI, people are at risk of increased financial struggles, subsequently declining living standards and reduced quality of life (Cao, Krause, Saunders & Bingham, 2014; Krause & Carter, 2009; Rowell & Connelly, 2008). The current study highlighted that financial
concerns were prevalent across the sample, regardless of age, education or employment status. Prior research claims that financial relief in the form of insurance payments or social welfare ‘disincentivises’ RTW (Marini et al., 2008). This study reframed this finding to suggest that financial relief gave participants space to consider more meaningful, longer-term RTW pathways. EIVR has the potential to moderate the relationship between financial relief and RTW motivation, facilitating participants’ forward momentum in their RTW despite the potential demotivating effects of the financial relief received. Further, participants in this study with less reliable financial support were more motivated to engage in VR, indicating that participants may perceive EIVR as a pathway to financial security. More research is needed to explore the impact of EIVR in the presence of financial relief, and indeed to establish any impact of EIVR on income after SCI.

7.6.2.3 The utility of the Transtheoretical model

The results of the current study suggest that the Stages of Change (SOC) model has utility within EIVR, and potentially VR more broadly. This is further underscored by the widespread use of interventions based on SOC theory, such as Motivational Interviewing, which have demonstrated efficacy in the RTW context (Page & Tchernitskaia, 2014). However, ascertaining the client’s stage of change requires the use of an assessment tool, and current assessment tools have weaknesses that potentially undermine their use in practice. The RRTW Scale (Franche et al., 2007) which is based on the SOC theory, was developed for clients with musculoskeletal complaints and therefore does not consider the unique barriers to employment experienced by people with SCI. Additionally, the extremely sensitive nature of working with people in the earliest stages of recovery from a life-changing injury like SCI means that practitioners may have to limit or discard the use of such scales in favour of rapport building and sensitivity to the person’s situation. Further research is needed to develop and validate a
RTW readiness scale specific to people with SCI and establish guidelines for the incorporation of such a scale into VR practice.

7.6.2.4 The occupational bond

Occupational bonding is a useful construct to conceptualise a person’s attachment to working and suggests practical ways to preserve this attachment. However, the concept of occupational bonding proved difficult to operationalise in the current study. The researcher attempted to explore this construct using scaling questions about the importance of work and the reasons work is important. The salience of work was assessed with questions about the closeness of work—whether it was ‘moving closer’ or ‘moving further away’—to varying degrees of success. This difficulty meant that the researcher’s own language was occasionally introduced into the data. The conceptual model of occupational bonding presented in the current study could potentially be used to inform more rigorous operationalising of the occupational bond in future, potentially beginning with a pilot study to ascertain the words people use when discussing their relationship to their employer and to the world of work.

7.6.2.5 Empowerment

The empowerment framework introduced and explored in this project provides a clinically useful framework of EIVR, suggesting ways of working both with the person and with the environment. Although the underpinning constructs of the psychological domain of empowerment have been supported as being related to both health and employment outcomes post-SCI, there is limited research on how these factors work within the EIVR setting. The current study provided exploratory qualitative data about these psychological factors, and further research could assess levels of self-efficacy, hope and motivation during pre- and post-discharge from EIVR to evaluate the impact of EIVR interventions on these psychological resources.
7.7 Limitations

7.7.1 Phase 2 limitations

While the systematic review conducted in Phase 2 enabled summary and synthesis of the research about employment after SCI in a more rapid, reproducible way than a narrative approach (Pickering & Byrne, 2014), there were some key limitations to the review. Firstly, there was a preponderance of literature relating to quality of life after SCI, of which employment is often a peripheral factor. Given that the focus on employment in these studies was usually very minor, these studies were excluded to balance comprehensiveness and manageability. It is possible that some relevant studies were excluded as a result. Another important limitation of the review method used is that inputting studies into a quantitative database required interpretation on the part of the researcher. Uncertainties in this process were resolved via peer checking with supervisors, but it is possible that this process of interpretation biased the results. An important limitation of the conceptual component of the review (relating to the occupational bond and empowerment) was that each review combined constructs which conceptually overlapped, for ease of analysis and reporting. This may undermine the confidence of conclusions made about the constructs, as many of these constructs were theoretically distinct. Finally, the review was also limited to English language publications, and those accessible through the Griffith University library databases.

7.7.2 Phase 3 limitations

7.7.2.1 The sample

The original strategy aimed to recruit eight to ten participants as early as possible post-discharge; however, this proved more challenging than anticipated. The transition from hospital to the community can be a difficult time for people with SCI, requiring adjustment to a less-accessible world and a loss of access to support (Dickson et al., 2011). Combined with the research burden on the SCI population, this meant that there were delays in obtaining consent.
to participate in the study, resulting in some participants being more than six months post-discharge. To mitigate this, some data were collected retrospectively by encouraging participants to reflect on their experiences directly following discharge to capture work-related thoughts, attitudes and experiences relating to the earlier stages of their vocational trajectory. This limitation was largely mitigated by the diversity of the sample; the level of commonality of experiences between participants, despite differences in age, gender, injury level, education and pre-injury occupation within the sample, indicated that this had limited impact on the credibility or trustworthiness of the data.

Further affecting recruitment was the fluctuating nature of health within the first year of discharge for the participants. Ongoing rehabilitation commitments and instability in the health situations of participants meant that some data were missing, with one participant missing an interview and another lost in follow-up. To ensure an adequate sample, the inclusion criteria were broadened to include people with a longer time since discharge. Broadening the recruitment criteria proved sufficient to address recruitment difficulties. Although there were some limitations to the sample presented by aforementioned recruitment difficulties, the recruitment strategy ultimately achieved a diverse final sample including a spread of ages, genders, education levels, injury levels and ambulation requirements, thereby enriching the data.

7.7.2.2 Methodological limitations

This was a six-month longitudinal study. A longer follow-up period may have provided more data on the actual process of RTW. Indeed, most participants in this study had not returned to work by the completion of data collection. Although the follow-up period was sufficient to answer the research questions and provided insights into early vocational attitudes and experiences following SCI, future research should incorporate a longer follow-up period to better elucidate the entire job seeking and RTW experience from discharge to employment,
identifying the factors that promote RTW and support career advancement after returning. Based on the RTW trajectories evident in this study, a follow-up period of at least one year would capture most participants’ work reintegration and maintenance phases.

The use of phone interviews was another potential limitation, given that IPA requires lengthy and in-depth interviews in order to yield rich data for analysis. The use of phone interviews for IPA is questionable, as they potentially diminish the ability to build rapport and limit the expansiveness of participants in answering questions (Sweet, 2002). While this method potentially limited the depth of information available, conducting the interviews this way enabled the researcher to capture a diverse sample spread over a large geographical area.

7.8 Strengths and Contribution

Despite some limitations, the current study provides in-depth insights into the early work-related attitudes and experiences of people with newly acquired SCI that had previously not been reported. The use of an IPA framework provided the opportunity to explore the consumer’s perspective of one such service with a small sample of people with newly acquired injuries. The longitudinal nature of this work enabled investigation of RTW pathways after discharge from hospital, providing unique insights into the non-linear nature of people’s RTW journeys and how EIVR can contribute to promote vocational success in the long term. The broad range of ages, injury levels, ambulation needs, education levels and pre-injury occupations strengthened the study, providing rich insight into the lived experiences of this population and their RTW journeys. To the author’s knowledge, this project is one of the first studies investigating the consumer perspective of EIVR services (see also Ramakrishnan et al., 2016), and the first conducted in the Queensland context. The current study affirmed the value of EIVR services for people with SCI, and highlighted potential areas for further refinement in the words of the consumers themselves, thereby enhancing the quality of services for future consumers. This consumer perspective elucidated the specific vocational needs of people with...
newly-acquired SCI, providing relevant information for the ongoing development of services for this population. These contributions build on the knowledge base about RTW after SCI and promote the continuing development of VR services for this population.

Considering VR theory, the study added to the knowledge base of RTW readiness, supporting the extension of SOC theory into the VR context. The study provided supporting evidence for the use of related interventions, particularly MI, which has become increasingly prevalent within VR in recent years. The combined exploration of occupational bonding and empowerment in the current study provided conceptual frameworks for the underpinning mechanisms of EIVR. The current study is, to the author’s knowledge, the first direct attempt to investigate the occupational bond; prior work in this area was theoretical. This is an important contribution as preserving pre-injury employment is a key justification for early intervention within VR (Hilton et al., 2017; Middleton et al., 2015). Given its ubiquitousness in disability management policy, the lack of research exploring the conceptualisation of the occupational bond and its relationship to outcomes was a clear knowledge gap. The current study substantially expanded the conceptualisation of occupational bonding, supporting its inclusion in policy and practice and providing a basis for further research. The inclusion of an empowerment framework was also an important contribution of the study, highlighting how EIVR works to promote both employment and general wellbeing by reinforcing psychological resources. These two frameworks deepened the conceptual basis for EIVR and provided practical suggestions for the development of early VR interventions.

The systematic review component of the project systematically explored and summarised the extant literature about employment after SCI, exploring areas of consensus and inconsistency. Importantly, the review summarised definitions of employment after SCI, enabling later comparison with participants’ perceptions and identifying a mismatch in what researchers and consumers consider ‘successful’ employment. The review also identified
populations that were potentially being overlooked, namely those with newly-acquired injuries, those who did not fit the dominant racial or ethnic group, and women. It is the hope of the researcher that future research can address these gaps to more comprehensively serve the needs of people with SCI.

7.9 Summary and Conclusions

Employment after SCI is associated with an array of benefits, including the financial (Rowell & Connelly, 2008), physical (Krause, Saunders & Acuna, 2012) and psychosocial (Chapin & Holbert, 2010; Clifton, 2014). Despite these benefits, RTW rates after SCI have remained low: approximately 35 per cent, compared to an average labour market participation rate of 65 per cent within the broader populace (Bloom, Dorsett & McLennan, 2019). For those who do return to work, the latency between injury and first RTW is often as long as five years (Krause, Terza, Saunders & Dismuke, 2010), by which time knowledge and skills are potentially dated, pre-existing networks have lapsed, and the occupational bond has weakened. EIVR aims to preserve these components, ultimately improving RTW rates and shortening the time to first job post-injury. The bulk of work published about EIVR after SCI is focused on the outcomes of such services and suggests that EIVR is effective in achieving this aim. EIVR programs report shorter latency between injury and RTW (Hilton et al., 2017), achieving RTW rates of 35 per cent within weeks or months of discharge (Hilton et al., 2017; Middleton et al., 2015). The current study aimed to extend the understanding of early post-injury vocational trajectories through an in-depth exploration of the consumer’s perspective of EIVR, and their work-related thoughts and experiences following participation in an EIVR program. To that end, a qualitative, longitudinal case study design was utilised, wherein participants were recruited and interviewed as close to discharge as possible and again at three and six months post-discharge. As well as revealing participants’ perspectives of the EIVR program itself, data
analysis yielded broad themes of readiness, hope, empowerment and the importance of work in participants’ lives.

The results of this study supported the early timing of EIVR services within the primary rehabilitation phase, suggesting readiness to RTW exists along a continuum, with readiness to engage with VR services often occurring soon after injury. Participants reported that the service assisted them in their RTW journeys in a number of ways, including concrete services such as vocational counselling, advocacy, linkage with services, liaison with employers, identification of study options, goal setting and planning. Arguably more powerful were the less concrete benefits of EIVR. The findings suggest that EIVR promotes autonomy and inspires hope, both maintaining participants’ hope for independence and assisting them to work towards it at a time when people might feel that they have less autonomy. By facilitating hope and self-efficacy, promoting clarity and mitigating logistical issues, EIVR empowers consumers.

One of the major theoretical underpinnings of EIVR is the occupational bond, described as the relationship a person has with their employer. By liaising with the employer early, EIVR aims to protect this bond and prevent job loss. The literature review yielded little research on this concept directly, but indicated the existence of a broader conceptualisation for this bond, one inclusive of both the relationship with the employer, and with the world of work generally. The findings tentatively supported this model, with more research needed to operationalise the construct and further refine the model. It seems that EIVR does protect the occupational bond, but does so by reinforcing the salience of work and supporting pre-injury work relationships.

Taken as a whole, the current study addressed a gap in the knowledge relating to the consumer perspective of EIVR after SCI. Although services are still emerging and developing, the consumers interviewed underscored the value of EIVR during their early rehabilitation. EIVR inspires hope and promotes possibility at a time when these feelings are in short supply. Given the broad benefits of EIVR for the participants in this study, it is clear that such services
address a need of this population that was previously unfulfilled. VR services have the potential to augment primary rehabilitation to better serve the priorities of the consumer, mitigating the impact of the injury on lifelong career paths and improving long-term quality of life after SCI.
References


Berger, R. (2015). Now I see it, now I don’t: Researcher’s position and reflexivity in qualitative research. *Qualitative Research, 15*(2), 219-234.


doi:10.1038/sc.2016.169

phenomenological analysis to inform physiotherapy practice: An introduction with
reference to the lived experience of cerebellar ataxia. *Physiotherapy Theory and

Snyder’s hope theory as a motivational model of participation and life satisfaction for
individuals with spinal cord injury: A path analysis. *Rehabilitation Research, Policy,
d=14543

Chapin, M. H. & Holbert, D. (2010). Employment at closure is associated with enhanced
quality of life and subjective well-being for persons with spinal cord injuries.
=14543

Positive psychology theory, research, and practice: A primer for rehabilitation
counseling professionals. *Rehabilitation Research, Policy, and Education, 27*(3),
131–153. doi:10.1891/2168-6653.27.3.131

psychology in rehabilitation. *Rehabilitation Research, Policy, and Education, 27*(3),
126. doi: 10.1891/2168-6653.27.3.126


Inge, K. J., Graham, C. W., Bogenschutz, M. D., Wehman, P., Erickson, D. & Seward, H. (2018). Barriers and facilitators to employment: As reported by individuals with spinal cord injuries. *Journal of Rehabilitation, 84*(2), 22–32. doi: 0.1038/sc.2010.110


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doi:10.1006/ceps.1999.1020


Appendices

Appendix 1. ISCOS Publishing Agreement

 LICENCE TO PUBLISH

Manuscript Number: SCSANDC-2016-0159R

Journal Name: Spinal Cord Series and Cases

Title of the Contribution:
Integrated services and early intervention in the vocational rehabilitation of people with spinal cord injuries

Authors:
Julia Bloom, Pat Dorsett, Vanette McClennan

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Signed for on behalf of the Author(s):

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Date: 15/12/2016

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Australia
Appendix 2: List of studies included in the Phase 2 systematic review

<table>
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<th>Methods, measures and demographics article (Chapter 2)</th>
<th>Occupational bonding article (Chapter 3)</th>
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331
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## Appendix 5: Occupational bond database

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### Appendix 7: Empowerment database

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INVITATION TO PARTICIPATE

RETURNING TO WORK AFTER A SPINAL CORD INJURY RESEARCH PROJECT

A study investigating your thoughts, feelings and experiences about vocational rehab and returning to work following a spinal cord injury.

Project Aims
This study aims to explore and describe the experiences of people who are participating in the Back2Work program. The project will help understand the needs of people with spinal cord injuries in the vocational rehab context, and help improve services in the future.

What does participation involve?
Participation involves three interviews; one soon after discharge from the hospital, one at three months after discharge, and a final interview at six months after discharge. The interviews will be done over the phone, and will take approximately 45 minutes to complete.

How do I participate?
If you decide to participate in these interviews, please email Julia Bloom at julia.bloom@griffithuni.edu.au to express you interest. Julia will then set up a time to conduct the first interview.

What's in it for me?
Every participant receives a $50 Coles Myer gift card to acknowledge your time commitment.

Thank you for considering participation in this project.
Appendix 9. Participant Information Sheet

VOCATIONAL REHABILITATION AND EMPLOYMENT FOLLOWING NEWLY ACQUIRED SPINAL CORD INJURY

INFORMATION SHEET

Who is conducting the research

Dr Pat Dorsett (supervisor)
School of Human Services and Social Work
Griffith University
Ph: (07) 3382 1483
Email: p.dorsett@griffith.edu.au

Dr Vanette McLennan (supervisor)
School of Allied Health Sciences
Griffith University
Ph: (07) 5552 7890
Email: v.mclennan@griffith.edu.au

Ms Julia Bloom
School of Human Services and Social Work
Griffith University
Email: julia.bloom@griffithuni.edu.au
Why is the research being conducted?

You are being asked to participate in research investigating the early vocational rehabilitation and return to work experiences of people with a newly acquired spinal cord injury (SCI). This project aims to investigate and describe the experiences of people who have participated in the Back2Work program, and their subsequent employment experiences. The project will help to better understand the needs of people with SCI and improve future vocational rehabilitation service delivery.

This research is being conducted as part of a Doctoral research program at Griffith University.

What you will be asked to do

If you decide to take part in this study, then you will be asked to participate in three telephone interviews. I will contact you prior to each interview to arrange a time that is convenient for you. The first interview will occur as soon as possible after you have consented to participate, during your participation in the Back2Work program. The second will occur three months later, and the third another three months later. Each interview will take approximately 45-60 minutes.

During the interviews, you will be asked questions about your vocational rehabilitation and return to work journeys, including exploring themes such as the meaning of work, barriers to working, services that you find helpful or could be more helpful, and your ideas about the future of your working life. The data from each interview will be edited into a narrative format and summarised at the beginning of the subsequent interview, to give you an opportunity to check the accuracy of the researcher’s interpretation of your information.
The basis by which participants will be selected or screened

Anyone who has taken part in the Back2Work vocational rehabilitation program will be invited to participate in this research.

The expected benefits of the research

The research is expected to be of limited direct personal benefit to you. However, the interviews could help you reflect on your return to work journey so far, and help clarify potential issues in your employment or personal life which might impact on your employment, that you can later discuss with your rehabilitation team. Your involvement in the study will help us to design future services to better address the vocational needs of people with SCI.

Risks to you

There is a minor risk that participating in this research could cause some emotional distress as a result of discussing your recent spinal cord injury and its impact on you. However, most of the content of the interviews will touch on topics you will have previously discussed with your vocational rehabilitation counsellor, which should give you an idea of the level of distress you could potentially experience. Should you experience any distress, the national helplines provided by Beyond Blue (Ph: 1300 22 4636) and Lifeline (Ph: 13 11 14) are available to you for immediate support.

Your confidentiality
The confidentiality of your data is of the utmost importance to us. Data from the interviews will be transcribed and stored in a de-identified format, on an encrypted USB device. Hardcopies of the transcriptions will be stored in a locked cabinet until completion of the research, at which point they will be destroyed. Data will be able to be re-identified by the research team for purposes of linking the three data collection points. Transcriptions will be shared amongst the research team for checking of accuracy of data analysis. You will not be identifiable in any publications or presentations that arise as a result of this project. If you withdraw from the project, then your data will be destroyed, or kept for inclusion in analysis with your permission.

**Your participation is voluntary**

All participation in this project is entirely voluntary. If you do not want to take part, you do not have to. You are free to withdraw from the project at any time. If you do decide to take part, your consent will be verbally confirmed, and a record of this kept with your interview data. Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your rehabilitation or entitlement to health care in any way.

**Reimbursement for participation**

If you choose to take part in the project, you will be reimbursed for your time and inconvenience with a $50 Coles Myer gift card. This can be in the form of an eGiftcard send via email, or a physical copy sent via mail. This reimbursement will be sent to you after the first interview. Participation to the end of the project is not required for you to receive the gift card.
Questions / further information

For more information, please contact Ms Julia Bloom, PhD candidate at Griffith University, using the contact details provided at the beginning of this information sheet.

The ethical conduct of this research

Griffith University conducts research in accordance with the *National Statement on Ethical Conduct in Human Research*. If you have any concerns or complaints about the ethical conduct of the research project, please contact the Manager, Research Ethics on 3735 4375 or research-ethics@griffith.edu.au.

Feedback to you

If you desire, a full copy of your three interview transcripts, compiled into one coherent narrative, will be provided to you after completion of your third interview.

Privacy Statement – non disclosure

“The conduct of this research involves the collection, access and/or use of your identified personal information. The information collected is confidential and will not be disclosed to third parties without your consent, except to meet government, legal or other regulatory authority requirements. A de-identified copy of this data may be used for other research purposes. However, your anonymity will at all times be safeguarded. For further information consult the University’s
Appendix 10. Informed Consent Procedure

Your participation in this study is complete voluntary. If you agree to participate, you can withdraw at any time without any explanation, or penalties to you.

STUDY INFO

- Exploring people’s experiences, attitudes and beliefs regarding return to work in the 6 months immediately following participation in the B2W vocational rehab program
- Participation involves three interviews; one soon after discharge from the program, one at three months after discharge, and a final interview at six months after discharge
- The interviews will be done over the phone, and will take approximately 45 minutes to an hour to complete.
- The interviews will be recorded, with your consent, and transcribed into a narrative story, a copy of which I can send to you after the third interview
- The risks of participation are minimal. There is some risk you might become distressed from discussing some of the issues relating to your injury, but content will mostly touch on issues you will already have discussed in your vocational rehab
- Do you have any questions?

CONSENT

By agreeing to participate, you will be confirming that:

- You understand what participation in this research entails
- You have had any questions answered to your satisfaction;
- You understand that if you have any additional questions you can contact the research team;
- You understand that your participation is voluntary and that you are free to withdraw at any time, without explanation or penalty; and
You understand that you can contact the Manager, Research Ethics, at Griffith University Human Research Ethics Committee on 3735 4375 (or research-ethics@griffith.edu.au) if you have any concerns about the ethical conduct of the project.

Do you agree to participate in this research?

This interview will be recorded to ensure accuracy in transcription and analysis. These recordings will be available only to myself and my immediate supervisors for the purposes of checking the accuracy of interpretation. The recordings will be stored on an encrypted USB device, which will be kept in a locked cabinet when not in use. Once data collection and analysis is complete, the recordings of your interviews will be destroyed. Do you have any questions or requests about the recording, storage and/or use of your interview data?

Do you agree to this interview being recorded?
Appendix 11. Interview Guide

Demographic information

- Age
- Gender
- Injury level
- Time since injury (months)
- Education level
- Pre-injury occupation & hours worked
- Current employment status (incl occupation and hrs worked)

Brief outline of your return to work journey so far?

- Just a quick timeline – how long post-injury did voc rehab start, when was the current employment achieved (if applicable), how long have you been employed for [briefly summarise: so I’m hearing you say…]

When did you first get involved with the back2work program?

EARLY STAGE

- Thinking back to the earliest stage of your rehabilitation, what was your attitude towards returning to work?
  - PROMPT: hopeful, hopeless, driven
  - Need guidance or info?
- When did you feel ready to seriously think about returning to work?
  - So there was a time before then that you felt you weren’t ready?
During that time, what pushed you to feel more ready to start talking about work?

Do you think that’s typical? Or different for everyone.

How did you feel about your chances of returning to work?

Did this feeling change?

When did it change?

Thinking back to that time, what did you think would make it more difficult to return to work?

Can you tell me a bit more about that?

At that early time, who were the main sources of support in thinking about work?

Who did you talk to about work?

What did they do that was helpful?

Were there any services or experiences that you found helpful in thinking about or planning your return to work?

Any that were unhelpful?

Thinking back, how ‘in control’ did you feel of your career destiny?

If not: who, or what was in control?

NOW

IF AT WORK: How do you feel about maintaining your current work situation for the foreseeable future?

Have you felt this way since you returned to work, or has this feeling improved/changed?

When/why does this feeling change?

What is driving you to keep going in maintaining employment?
- Right now, how ‘in control’ do you feel of your career destiny?
  
  o IF SAME AS EARLY: have there been times where you did not feel in control?
  
  o IF CHANGED: when do you think this changed from your previous response?
  
- So would you say you are the main driver of your career right now?
  
  o Is there anyone else whose opinions or needs have an impact on your career decisions?
  
  o What are the main factors you take or have taken into account when making career decisions?

**FUTURE**

- Do you have career goals for the immediate future?
  
  o Has this been your goal since you first began thinking about work after the injury? When and why did this goal change?
  
  o Do you have longer term career goals – 1 year, 3 years, or 5 years into the future?

- How do you feel about your chances of achieving these goals?

- What do you think are the main obstacles towards achieving these goals?

- What are your main resources to help you achieve this goal?
  
  o PROMPT: internal – personal drive or confidence
  
  o EXTERNAL: partner, friends, family, health or VR professional

- You’ve mentioned that you feel [_______] control of your career, how confident are you that you will become/continue being the main driver of your career into the future?

- Do you think there are things that prevent you from controlling or directing your career?
- Do you think there are things which would help you to feel more in control or direct your career?

THE JOURNEY SO FAR

- Comparing before the injury to after, has your attitude towards working in general changed at all?
  o Is working more or less important now?
  o Does work still have the same benefits that it did before the injury?
  o Does work seem more or less temporary now?
  o Does the connection to the world of work seem more easily broken than it was?
  o What impacted those changes?

- Finally, is there anything I haven’t asked about which you think is important when talking about returning to work after spinal cord injury?

Turn off record