Post-injury return to work (RTW) is an important rehabilitation outcome regardless of injury type. With Spinal Cord Injury (SCI), the odds of successful RTW are lower than for the general population of work-injured. Australians living with a SCI have a higher RTW rate than many other developed countries, including the United States. Important influences on relatively higher post-injury RTW rates in the Australian context include its universal disability care policy, Australia’s suite of no-fault accident insurance systems that allow for multi-faceted rehabilitation services to be provided to eligible individuals in addition to appropriate rewards for rehabilitation service providers. A combination of these systemic factors is important when delivering comprehensive rehabilitation services to those with catastrophic injuries, such as SCI. The empirical evidence on drivers of successful RTW post SCI is, however, limited in comparison to the evidence on interventions for enhanced coping following SCI. Future studies could consider the relative merits of specific RTW interventions with SCI contrasting policy and capitation systems as well as utilising study designs that take into account pre-morbid work participation and secondary health conditions.

Keywords: policy influences, return to work, Australia, spinal cord injury, research directions, capitation systems

Vocational rehabilitation (VR) is the interconnecting link for interventions to restore, maintain and augment functioning for people with chronic illness or disability. Historically, the gold standard of successful medical rehabilitation has been post-injury vocational outcomes, particularly the return-to-work (RTW) rate achieved. The founding chair of the first North American Department of Physical Medicine and Rehabilitation referred to the rehabilitation phase of medical care as the period ‘between the bed and the job’ (Rusk, 1949: 286). The founder of the first comprehensive centre for the treatment and rehabilitation of persons with a spinal cord injury.
cord injury (established at Aylesbury, England), was also very clear about the nexus between ‘rehabilitation’ and ‘employment’ (see Guttmann, 1945; 1976). When reporting on the high return to employment rates (69%) achieved by the first 1,000 patients treated, Guttmann stated that ‘it can now be concluded that the percentage of paraplegics unemployable on account of their spinal cord lesions will be very small . . . ’ (Guttmann, 1954: 1103). Employment continues to be the stronger indices of successful rehabilitation outcomes regardless of disability (Murphy & Young, 2008), with RTW remaining the central and defining goal of VR services.

For persons with a SCI, vocational rehabilitation has become increasingly centred on competitive employment outcomes as advances in care extend life expectancy and broaden accessibility to create a range of lifestyle choices. Indeed, employment status remains one of the strongest predictors of well-being post-injury, with those employed reporting higher levels of psychological and physical health as well as reduced use of health facilities, post-injury (Kent & Dorstyn, 2014; Murphy & Young, 2008). RTW support services include assistance with employer contacting, work scheduling and accommodations and supervisor/co-worker work re-entry induction (with same employer) or job seeking (with different employer). In Australia these services are currently provided by a set of Approved Rehabilitation Providers. These services are primarily funded by taxpayers unless the injured person is covered by workers’ compensation or motor vehicle accident insurance schemes that operate in most states or territories (see Middleton et al., 2014 for a recent description of VR practices in an SCI context). Other important considerations in the RTW process for consumers with SCI and prospective employees include physical and architectural barriers, work discrimination and diminished economic benefit. Thus, RTW rehabilitation interventions and related practices for people with SCI need to be guided by an understanding of the complex mix of factors that influence intervention effectiveness with the specialised needs of this population, typically considered to have low vocational potential (Murphy & Young, 2008).

This article considers practices and research evidence relevant to the RTW achievements of those living with SCI in the Australian context. We examine RTW research investigating the rate of success in labour participation for those with SCI, the policy context and the effects of secondary health conditions or co-morbidities, which have implications for post-injury work participation. Finally, we examine research directions in the area of RTW following SCI, and implications of research findings for clinical practice.

**Return to work with SCI**

In Australia, among those work-injured, general RTW rates of approximately 70% post-injury have been reported (Australian Institute for Primary Care, 2006; Campbell Research, 2012), with lower RTW rates of between 31% and 47% experienced by people with SCI (King, Waghorn, Lloyd, McLeod, McMahon & Leong, 2006; Murphy & Young, 2008). However, wide variations in post-SCI employment rates have been reported across the developed nations. Whereas in Europe a median rate of 48% has been reported, RTW rates post-SCI in North America have rarely surpassed 30% (Young & Murphy, 2009). System characteristics of insurance schemes,
income-protection arrangements, along with socio-economic characteristics of different countries, exert a strong influence on the RTW rates achieved and/or reported. In addition there are differences in how RTW is defined across jurisdictions. In particular, RTW reporting guidelines are mostly social policy-driven and as such, data on work participation indicators other than formal employment status may not be routinely collected. For example, the Australian Workers Compensation benefit schemes typically define RTW based on information relating to the first day of reporting at the workplace post injury (Vermeulen, Anema, Schellart, Mechelen & Beek, 2010). Such point-in-time assessment is commonly used, as it is simple to extract information about the first day of workplace presence by the employee post-injury, although data related to sustained RTW may be more useful to managers and rehabilitation practitioners. In Australian workers’ compensation, durable RTW is assessed, and is defined as work continuation for seven to nine months post workplace re-engagement (Campbell Research, 2012). Point-in-time RTW reporting has the obvious limitation of inflating the success rate in cases where an individual returns to the workplace but subsequently withdraws from labour-force participation. However, such point-in-time focus is encouraged by the fact that insurance or welfare systems rarely provide adequate payments for individualised post-placement or post-RTW services (Campbell Research, 2012).

Nonetheless, the SCI literature consistently reports low RTW rates (King et al., 2006; Murphy & Young, 2008; Young & Murphy, 2009). More recently, psychological factors and attributes have been implicated in this process, considered to explain a significant amount of variance in post-injury employment status (Ottomanelli & Lind, 2009; Kent & Dorstyn, 2014; Murphy, Young, Brown & King, 2003). This includes heightened risk of post-traumatic stress disorder from the trauma of experiencing a SCI (McFarlane & Bryant, 2007), which, in turn, can impede RTW success and other post-injury participation outcomes. A recent meta-analysis established the prevalence estimate of depression diagnosis after SCI to average between 18.7 and 22.2%, or to occur in at least a fifth of the cases (Williams & Murray, 2015). Depression and anxiety, both of which are compounded by the neurological effects of SCI such as fatigue and neuropathic pain, are also prevalent in persons with SCI. The co-occurrence of depression and anxiety with SCI may represent further complications to RTW (Craig et al., 2012; Craig, Tran, Lovas & Middleton, 2008; Kent & Dorstyn, 2014; Elliot & Kennedy, 2004). It follows that improvements in psychological well-being may lead to improved chances of employment post rehabilitation.

**Contextualising Post-Injury Vocational Rehabilitation Services in Australia**

Australia’s 23 million people have full access to high-quality hospital-based medical and physical rehabilitation, regardless of RTW prospects (Duckett & Willcox, 2011). However, vocationally-relevant assessments are not commonly supported within the traditional biomedical model of rehabilitation (Middleton et al., 2014). This is primarily due to the distinctive features of the Australian post-injury vocational system. Worker’s compensation streams rehabilitation services and approves eligible service providers through authorisations within a highly specified worker’s compensation
scheme. Nearly all vocational and RTW services are apportioned post-discharge to clients covered under workers’ compensation or motor vehicle accident insurance (Duckett & Willcox, 2011; Workcover SA, 2011), even though authorities such as Waddell and Aylward (2005) maintain that occupational management must proceed in tandem with clinical management of the work-injured if chronic work incapacity is to be avoided. Persons with spinal cord injuries not covered by the major no-fault workers’ compensation or motor vehicle accident insurance schemes receive vocational preparation and return to work services from a patchwork of federal government approved public, private, and non-profit Disability Employment Service (DES) providers (Australian Government Productivity Commission, 2011; Byrnes & Lawn, 2013). There are more than 100 such DES contractors operating across Australia serving over 1,000 metropolitan and rural locations. This coverage does not usually meet the full range of vocational rehabilitation services needed by those living with SCI, hence DES rehabilitation may focus on social integration rather than labour force participation (Harrison & Allen, 2003).

The RTW service context for SCI may change with the advent of the 2013 National Disability Insurance Scheme (NDIS). The NDIS will provide individually funded packages to support individuals with permanent physical, sensory or intellectual disability. This includes funding support for activities to facilitate RTW, such as personal attendant care in the workplace, aids and equipment to maximise the person’s functional independence and transport to and from work as required (Australian Commonwealth Government, 2013). The NDIS should facilitate improved RTW rates of those with SCI when fully funded – particularly via services that assist with mobility and transportation issues. This prospective NDIS support would contrast the current biomedical rehabilitation approach, which gives little salience to vocational preparation as an index of successful rehabilitation service delivery (see Murphy, 2009a). Indeed, individuals served in a strictly biomedical model are typically discharged home with limited understanding of their chances of successful participation in gainful and productive employment (see Fadyl & McPherson, 2010).

Types of High Prospect RTW Interventions for those living with SCI

RTW is founded on the following empirically-based principles: 1) early assessment and intervention; 2) a focus on the workplace; individualised services that are co-ordinated, accountable, and results-oriented; 3) active worker participation in plan development and implementation; and 4) employer engagement in prevention as well as rehabilitation (Murphy & Swerissen, 2006). Despite these useful guiding principles, there remains a need to improve inter-sectoral links between rehabilitation health service providers, vocational placement services, employers and participants in order to enhance return-to-work outcomes following SCI (Harrison & Allen, 2003; King et al., 2006).

In the Australian context, inter-sectoral RTW coordination could be facilitated by the Heads of Workers’ Compensation Authorities (for the workers’ compensation insurance industry) and Disability Employment Australia (for the public services), each of which employ rehabilitation consultants and case managers to provide
networked services with a supposedly RTW or employment focus. Within this case-mix model, service inefficiencies due to a delay in case decisions or flow with manual case management may result (Harrison & Allen, 2003). However, communication systems exist to enable seamless inter-sector RTW services. This includes the coordinated use of telecommunication technology, namely Internet-mediated services, in vocational rehabilitation to enable the contemporaneous delivery of vocational services alongside traditional physical rehabilitation SCI services. Indeed, telecommunication-based vocational services have been shown to be cost-effective and well accepted by consumers with disability (Schmeler, Schein, McCue & Betz, 2009). However, despite its potential, the use of virtual reality technology to support RTW services for individuals with SCI remains largely aspirational, although a handful of SCI researchers are starting to develop VR services that involve Internet-based applications (see Murphy, 2013).

RTW rates for those living with SCI could be improved further by using more responsive assessment tools, or outcome measures that provide information about relevant personal and environmental assets that facilitate work participation (see also Mpofu et al., 2012; Murphy, Middleton, Quirk et al., 2009). One pertinent personal attribute important to RTW is resilience, or the ability to adjust successfully and persist in goal attainment efforts (Craig, 2012). Assessment of resilience within a VR context might include the following aspects: (a) actual or perceived risks and barriers to successful outcomes (e.g., investigating risks of chronic fatigue and neuropathic pain following SCI and its relation to vocational status); (b) investigating cycles of failure (e.g., cycles of unsuccessful job interviews or of employment cessation in the injured and reasons why); (c) the establishment and maintenance of protective factors such as self-esteem and self-efficacy beliefs even after frequent job-application failures; and (d) opening up of opportunities, such as vocational opportunities (see also Kilic, Dorstyn & Guiver, 2013; Kent & Dorstyn, 2014; Rutter, 1987). This assessment framework goes beyond the traditional deficit model typically used in SCI rehabilitation or one in which clinical assessment predominately focuses on the risk factors that contribute to poor psychological adjustment post-injury (Craig, 2012; Middleton & Craig, 2008) and gives priority to addressing potentialities for work participation including job retention (see also Murphy & O’Hare, 2011).

**Research Directions on RTW with SCI**

Studies of post-injury interventions for those living with SCI are limited (see Trenaman, Miller, Escorpizo et al., 2014) and, where present, have tended to focus on the pre-vocational stage. This includes studies that have examined interventions to enhance resilient coping with SCI rather than RTW outcomes per se. For instance, Kennedy, Duff, Evans and Beedie (2003) demonstrated that a brief group-based psychological intervention, Coping Effectiveness Training (CET), significantly reduced rates of depression and anxiety compared with those of a matched SCI in-patient control group – however these researchers did not extend the assessments taken to include any measurement of vocational achievement. Similarly, Craig et al., (1997) conducted a non-randomised controlled trial on the effectiveness of cognitive behaviour therapy (CBT) for people with SCI. CBT was shown to enhance...
significantly the life quality of the SCI participants, significantly reduce prevalence of depressive mood and anxiety, improve coping and adjustment expectations, reduce hospital admissions, and reduce medication intake. Improvements were numerous and enduring, registering at two years and six years post treatment (Craig et al., 1998; Craig et al., 1999).

Although it can be reasonably argued that improvements in well-being (e.g., lowered depressive mood and anxiety, enhanced adaptive expectations about the future) will lead to improved chances of employment post-rehabilitation, it is important to recognise that improved psychological ‘adjustment’ does not translate directly to improved vocational performance (see Murphy, 2009b). For instance, pre-morbid functioning may mediate the relationship between resilient coping following SCI and RTW, whereby individuals with significant pre-injury work participation will likely have successful RTW outcomes compared with peers with lower pre-injury participation. RTW research is therefore needed that builds on and broadens resilience based models of coping with SCI and its vocational sequelae (Craig, 2012). Specifically, evidence is needed on psychological interventions that target issues such as depression and that make for higher RTW prospects post-SCI. Such evidence could explain RTW success rates beyond predictions based on the physical-functional limitations and impairment associated with the injury as well as on influential, but essentially unchangeable, demographic characteristics, as dominates the extensive reports of Krause and colleagues (see, for example, Krause et al., 1999).

Effects of capitation systems on RTW
An examination of outcome studies that have compared the rehabilitation achievements of those individuals with traumatic SCI with insurance entitlements, against the achievements of those similarly-injured but without compensation, can be used to yield one index of the effectiveness of the rehabilitation provided to both groups. For instance, MacKenzie et al. (1998) reported that those with Workers Compensation entitlements returned to work at a significantly lower rate than did those with no insurance cover (Relative Risk Ratio of .40). Similarly, in the study of Zelle et al. (2005), those with workers compensation entitlements were 70% more likely to have withdrawn from labour force participation (C.I. 1.14–2.83). Within a sample of North Americans living with SCI, Bell (2002) found that receiving disability benefits, including workers’ compensation, following SCI decreased the probability of working post-injury, and increased the number of years post-injury before a RTW was attempted by an average of 2.5 years. Further research is needed on subgroups of SCI with compensation that choose work participation, in order to partial out effects of compensation systems on RTW with SCI. Findings from the related research would clarify the role of compensation per see in RTW considerations beyond perceived compensation-oriented work disincentives.

Limitations of research on RTW for those living with SCI
Post-SCI vocational rehabilitation research and practice is constrained by the low study enrolments, consequent upon the low incidence of SCI in the general population (estimated at between 14 and 22 per million in Australia; O’Connor &
Cripps, 1997). The relatively low incidence of SCI potentially places would-be participants at risk for ‘research participation burnout’ from repeated requests for study participation. Improved inter-sectoral links between rehabilitation providers, employers and participants for RTW, as previously discussed, could potentially increase data set networking for research purposes. Inter-sectoral collaboration would also support longitudinal studies to address long term RTW outcomes with more reliable tracking of labour force participation post-discharge. Currently, there is scarcely any research based on the inter-sectoral collaboration effects on RTW among those living with SCI. A more general problem with research in the field is the scarcity of high quality experimental studies of interventions aiming to enhance post-injury vocational achievements among those living with SCI. Trenaman et al. (2014) attempted to conduct a systematic review on the topic and could locate only two relevant experimental studies.

Evidence is also required on post-SCI RTW outcomes achieved from early contact with vocational rehabilitation services. Studies with other disability populations suggest that early employee contact has positive effects on RTW outcomes (Murphy & Swerissen, 2006). However, the incremental benefits of RTW rehabilitation offered during the in-patient SCI rehabilitation phase compared with vocational interventions offered in community are still largely unknown, although results from one large, state-wide pilot study in New South Wales are promising in terms of enhanced post-injury vocational achievements (see Middleton et al., 2014). While experimental designs would provide strong evidence for specific RTW interventions (see Elliot & Kennedy, 2004; Trenaman et al., 2014), it is difficult to maintain comparability of groups over time given the medical complexities of SCI, including recurrent or secondary health problems seen in this population. Studies would therefore always need to address effects on RTW outcomes explained by secondary conditions following SCI, as such conditions limit labour force participation (Craig & Nicholson Perry, 2014).

Additional challenges for both the private and public providers of rehabilitation services arise from the use of medico-legal reports by physicians not trained in vocational rehabilitation and who may not fully understand the health benefits of being employed (see Paul & Moser, 2009). Further challenges are posed by the recruitment practices and case management systems currently utilised by private and public providers in Australia which see widespread employment of rehabilitation consultants trained in allied health but with limited education in rehabilitation counselling, including in vocational rehabilitation.

**Implications for Vocational Rehabilitation Practice and Policy**

Compensation insurance policy provisions influences impact observed RTW rates for those living with disability. A disability social inclusion approach with its emphasis on full community participation (Harley, Mpofu, Scanlan, Umeasiegbu & Mpofu, 2015) would likely result in greater numbers of people with SCI choosing RTW rather than with reliance on compensation oriented incentives. For instance, RTW could be enhanced with a disability care approach in which work participation is interlinked with other social inclusion or life design supports (see Mpofu, 2013). This
would result from the fact that a disability social inclusion approach in which RTW was one of many complementary community participation outcomes would likely result in more sustained post-injury employment. Regardless of capitation systems in place, RTW (especially for those living with SCI) may be enhanced with a broader or more inclusive definition of work participation to include self-employment in the home or other choice settings. For instance, Telework via the Internet has become a mainstream option for employment and has the advantage for those living with SCI of minimising the impact of transportation and community accessibility issues (Bricout, 2004).

Challenges associated with adaptation and adjustment to physical disability make timing of RTW efforts particularly crucial. Early-contact, vocationally-focused rehabilitation services can be expected to enhance RTW rates (see Murphy, 2009a; Young, Murphy & Athanasou, 1996; Middleton et al., 2014), as would support with the management of secondary health conditions commonly associated with SCI. Workers with SCI face a complex set of barriers beyond the severity or level of SCI injury (Lidal, Huynh & Biering-Sørensen, 2007). Transportation is a major and often overlooked barrier to employment and needs to be directly addressed as part of any RTW support for those living with SCI. Integrating personal assistants (Hagglund, Clark, Mokelke & Stout, 2004; Lidal et al., 2007) as RTW supports could enhance sustained or durable post-injury work participation following SCI (see Ottomenelli, 2012). RTW services that address work access issues inclusive of transportation likely will yield improved rates of work participation than commonly observed (see also Lindquist & Lundalv, 2012).

RTW service providers may be influenced by reimbursement systems insensitive to severity of disability, and thus may move to prioritise or ‘cream’ those cases of SCI perceived to require less support for successful transition back to the workplace (Byrnes & Lawn, 2013). To avoid creaming and premature placement of workers within incentive-based schemes, complex cases can be monitored and funded differently, allowing for the additional time, effort and resources that are needed for stable, satisfying vocational outcomes. In New South Wales, the Lifetime Care and Support Authority (LCSA) has led the way among Australian jurisdictions in providing proper levels of resource support for those with catastrophic injuries. This segmentation and triage of case worker requires similarly articulated organisational structures and processes (i.e., efficient means to direct simple cases to case coordinators, directing complex cases to triage managers with more extensive training in allied health fields as well as in rehabilitation counselling, including especially VR).

Summary and Conclusion

RTW has a long history as an index of successful rehabilitation following physical injury, including those with SCI. People living with SCI have often tended to be regarded as having low vocational potential despite the fact that interventions producing higher-than-average RTW success rates for those with disabilities including SCI, are possible (see Young, Murphy & Athanasou, 1996). In the Australian context, disability care and capitation system policies have significant influence on perceived prospects for vocational re-entry as a rehabilitation outcome. Coordinated,
multi-sectoral RTW interventions that use contemporary electronic health case management systems would allow for expedited vocational re-entry rehabilitation supports. Evidence is needed on the critical ingredients for RTW success with SCI after taking into account pre-morbid work participation, secondary health conditions, disability policy and capitation system environment influences.

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