



The meaning of work after spinal cord injury: a scoping review

Mohammad Mosayed Ullah ¹ · Ellie Fossey^{2,3} · Rwth Stuckey⁴

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Abstract

Study design Scoping review.

Objectives To explore the meaning of work after spinal cord injury (SCI) in existing literature.

Methods Arksey and O'Malley's widely used methodological framework for scoping reviews was used to guide this review. Studies involving adults with SCI, conducted using qualitative methods, and published in peer reviewed literature were identified based on key terms and searches in three databases (CINAHL, MEDLINE, PsycINFO). Further search steps included checking citations in identified articles and citation tracking for other relevant articles and reviews. Reported qualitative data were then thematically analysed to generate themes.

Results Twelve studies were included. Three themes were identified across these studies that describe the meanings of work after spinal cord injury: re-developing a sense of self, re-establishing place in the community and regaining economic self-sufficiency.

Conclusions The varied meanings of work after SCI identified in this review may be used in rehabilitation programs to explore ideas about work, the types of work they wish to pursue, and the ways in which work may be meaningful for people with SCI, so as to identify individually and contextually relevant work. Taking account of meaning in ICF based models of work participation could enhance patient-centred approaches in SCI rehabilitation.

Introduction

Epidemiological studies globally show that spinal cord injury (SCI) most commonly occurs among people of 15–40 years of age [1–3], which corresponds with either their vocational development or being of working age [4]. When

affected persons remain out of work, SCI impacts negatively on life satisfaction [5] and economically both at personal and societal levels [6]. Work and employment are considered important means of participation and integration in society for adults with SCI [7, 8]; returning to work can also improve quality of life and longevity [4, 5]. However, return to work rates following a disability like SCI are estimated to vary from 11.5 to 74% internationally [4, 9, 10], with differences being identified as due to many factors including variation in injury compensation, health care and support systems, legislation, as well as methodological and measurement issues [9, 10].

Previous research also identifies that entering the workforce after SCI is complex, may take considerable time to achieve, and is influenced by many interrelated factors. These factors include individual needs, expectations, time since injury, available supports and resources, type of employment, employer role, and individual attributes such as age, educational level, injury severity, ethnicity and previous work experience [4, 7, 8, 10, 11]. Previous studies also show that psychosocial factors strongly influence return to work success after injury, including affective experience

✉ Mohammad Mosayed Ullah
mosayedbd@gmail.com

¹ Department of Occupational Therapy, School of Allied Health, College of Science, Health and Engineering, La Trobe University, Melbourne, VIC 3086, Australia

² Department of Occupational Therapy, School of Primary Health Care, Monash University, Peninsula Campus, Frankston, VIC 3199, Australia

³ Living with Disability Research Centre, School of Allied Health, College of Science, Health and Engineering, La Trobe University, Melbourne, VIC 3086, Australia

⁴ Centre for Ergonomics and Human Factors, School of Psychology and Public Health, College of Science, Health and Engineering, La Trobe University, Melbourne, VIC 3086, Australia

or feelings, individual's thoughts and beliefs about quality of life, life satisfaction, and adjustment to sustaining SCI [5,11–14]. Further, the most frequently reported barriers to employment include transportation, physical limitations, insufficient education or vocational training, architectural barriers, financial disincentives and attitudes of employers [9]. Most of these studies have been predominantly quantitative in nature, yet people often also experience changed perspectives of their lives, activities and surroundings following SCI [15]. The experience and the meaning of disability can also be altered when the consequences of an impairment are changed through engagement in valued occupations [16, 17]. This suggests the 'meaning of work' may be an important subjective issue that impacts return to work success after SCI, making it important to understand from the perspectives of people with SCI themselves.

A scoping review in 2014 explored what work means to people with major health conditions and disabilities [18]. Its finding indicated that while people remain motivated to return to work, the meaning of work may be changed in the context of disability. This review included 52 studies involving participants with widely varying conditions (e.g., cancer, brain injury, mental illness, and intellectual disability). While useful, its findings relating to what work means following SCI are limited given only 3 of the 52 studies focused on people with SCI. An earlier review of qualitative studies investigating quality of life after SCI [15] identified engagement in personally meaningful occupation as one of ten dimensions that contributed to experiencing a life worth living. While demonstrating the value of reviewing qualitative studies to better understand experiences of work and disability, neither review focused specifically on the meaning of work participation from the perspective of people with SCI. This suggests a more focused review of studies relevant to this population would be useful to map what is known about the meaning of work following SCI. In turn, this could assist rehabilitation professionals in practice to enable individuals with SCI identify personally meaningful work opportunities, and consider the 'meaning of work' as a factor in their return to work success. With the aim to better understand the meaning of work participation from the perspectives of people with SCI, this paper reports a scoping review of research about the meaning of work for adults following SCI.

Methods

A scoping review approach was chosen to review and describe research findings about the meaning of work after SCI since it facilitates the systematic mapping of current research, and the identification of gaps in existing literature [19]. Arksey and O'Malley [19] described a scoping review

methodology with five main stages used to guide this review: identifying the research question, searching for relevant studies, study selection, charting the data and then collating, summarising and reporting the results.

Stage 1: Identifying the research question

The identified scoping review question was "What is known about the meaning of work after SCI?" Three key concepts were identified from the review question: 'spinal cord injury', 'work' and 'meaning'.

Stage 2: Identifying the relevant studies

Suitable terms were identified in the databases, to search for relevant studies. The search terms chosen for the above key concepts were "Spinal Cord Injur*" OR "Spinal cord lesion*" OR "Spinal Cord Disease*" OR Paraplegi* OR Tetraplegi* for spinal cord injury; Work* OR Employment OR Job* OR Vocation* OR Occupation* for work; Meaning* OR Identity OR Perception OR Value OR Life Purpose for meaning. Using these search terms, three electronic database searches were conducted to identify studies related to the scoping review question. These databases, CINAHL, MEDLINE 1996- (Ovid) and PsycINFO 1987- (Ovid), were considered the most relevant to this research area. The initial database searching was undertaken in 2014 and the search re-run in October 2015. The searches used the limiters: *journal type* (Peer Reviewed Journal), *age range* (adolescent and above), *Language* (English), and *timeframe* (last 20 years). In the second step, reference list checking, citation tracking of related articles and tracking studies cited in recent reviews [4, 9, 10, 13, 15, 18, 20] were also completed. These search processes aimed to identify studies involving participants aged 18 years or older; conducted using qualitative or mixed methodologies, and published in peer reviewed journals. These criteria were justified as follows: (a) studies using qualitative methodology or mixed methods were included as qualitative studies are the most likely to describe findings about the meaning of work from participants' own perspectives; (b) studies involving people younger than 18 years of age were excluded since they are less likely to be in the workforce; and (c) only peer reviewed articles were included to focus on research evidence. Therefore, grey literature was not searched, and in the case of studies of mixed methods studies, the qualitative part of data collection, analysis and results were considered for the review.

Stage 3: Study selection

All studies identified through the database searches were exported to Endnote bibliographic software with abstracts

Table 1 Study overview

Author(s), (Ref. no.), year	Study purpose	Methodological description (design; sampling; data collection; analysis; location)	Participants (male (M) and female (F); age range; type/extent of injury; time since injury; employment)	Themes reported	Author reported limitation/s
Angel et al. [21]	To investigate the processes by which people with SCI regain meaning in their lives.	Longitudinal case study; purposive sampling; narrative interviews (5–6 times) and field observations over 2 years (7–9 times); Ricoeur's textual analysis; Denmark.	6M and 6F; 18–73 years; 9 incomplete and 3 complete SCI; interviewed in 1st year after injury and 2 years post-injury; 10 employed and 2 retired.	The process of regaining meaning involved: surviving physically and regaining vitality; moving back to life where possibilities present themselves; working with progress pursue possibilities; fading progress narrow possibilities down; exploiting limited possibilities; living life with qualities despite limitation; and, the evolving and dynamic nature of the meaning creating process.	None reported.
Boswell et al. [22]	To obtain perceptions of adults with SCI about the meaning of quality of life.	Qualitative study (type unspecified); convenience sampling; small group discussion, individual follow up telephone interview; pattern coding analysis by 3 researchers; USA.	8M and 4F; 26–62 years; either paraplegia or quadriplegia; wheelchair use for at least 1 year; 8 employed, 1 volunteer, 1 studying, 2 unemployed.	Defining the quality of life (<i>satisfaction with life, QOL is developmental or changing throughout the lifespan</i>); quality of life domain (<i>attitude toward life, opportunities to work, level of resources</i>).	Sampling limits applicability: all participants' tertiary educated and high no. in professional roles, not representative of SCI population.
Chapin and Kewman [23]	To examine factors differentiating persons with SCI who returned to work from those who did not.	Grounded theory; matched sample from database; face-to-face semi structured interview; grounded theory analysis; USA.	12M; 30–49 years; 9 paraplegia, 3 quadriplegia; 3–12 years since injury; 6 employed and 6 unemployed.	Themes differentiating employed and unemployed participants: sequence of return to work process (<i>job consideration and exploration, job seeking/offering/return to work, job maintenance/advancement, perceived advantages of working</i>); moderating variables (<i>physical impairment, activities and skills, psychological differences</i>).	Sample size limited by database use to match employed and unemployed; generalisability limited by single site and males only, most paraplegic.
Hammell [24]	To explore perceptions of quality of life among community-dwelling people with high SCI and factors identified enabling or constraining their quality of life.	Qualitative study (type unspecified); people with SCI consulted in design; purposive and snowball sampling; semi structured Interview; interpretive analysis; Canada.	11M and 4F; 21–50 years; all with quadriplegia; 4–28 years since injury; 2 employed, 1 self-employed, 5 studying, 7 other occupations.	Refocusing values/reaffirming the value of myself; autonomy, choice and control, and related issue of deinstitutionalization; meaningful use of time: doing and being; relationships, belonging, support and reciprocity; contextual issues: positive (<i>access to significant economic, physical and social resources</i>) and negative (<i>fighting the 'system' and coping with impairment</i>); contributors to quality of life; enabling quality of life.	Community-dwelling sample not representative of high SCI population in many societies.

Table 1 (continued)

Author(s), (Ref. no.), year	Study purpose	Methodological description (design; sampling; data collection; analysis; location)	Participants (male (M) and female (F); age range; type/extent of injury; time since injury; employment)	Themes reported	Author reported limitation/s
Hay-Smith et al. [25]	To understand the meaning of employment, barriers and facilitators from perspectives of persons with SCI and VR professionals.	Phenomenological approach; purposive sampling; semi structured interview; interpretive phenomenological analysis; New Zealand.	3 groups: 4 employed: 3M and 1F; age 26–57 years; 3 job-seeking: 2M and 1F; age 23–55 years; 5 unemployed: 4M and 1F; age 38–56 years; all 2–3 years post-injury.	In the pursuit of return to work, three themes link the persons with SCI, the work environment and their social contexts together: <i>living a normal life</i> encapsulates the meaning given to employment; employment barriers and facilitators and the role of VR professionals.	Not reported.
Leitlfsrud et al. [26]	To examine the value of employment for people living with SCI in Norway.	Grounded theory; purposive sampling; face-to-face open-ended interview; grounded theory and sensitising concepts informed data analysis, Norway.	20M and 11 female; age 23–68 years, 18 paraplegia, 10 quadriplegia, 3 other; 3–41 years since injury; 11 unemployed; 4M and 1F; 3 studying, 17 support pension.	Employment equals participation and integration, personal confidence and confirmation of identity, contribution to society/the moral dimension of work, functional equivalents to full-time employment; even if employment is less important than in the past, it continues to matter.	Limited interviews restrict generalisability of results to Norwegian SCI population; insufficient information to understand factors influencing work choices.
Bergmark et al. [28]	To explore experience and expectations concerning paid work among young adults on sick leave after SCI.	Qualitative study (type unspecified); purposive sampling; in-depth semi-structure interview, field notes; constant comparative method of analysis; Sweden.	6M and 2F; 20–34 years; 4 paraplegia, 4 quadriplegia; 1–5 years since injury; 6 employed, 1 studying and 1 unemployed pre-injury.	Finding your way to an everyday life where work is possible; at the crossroads, expectations of work through education; expectations of paid work as a part of a desired future life; expectations of finding a solution within oneself or with help from others.	Interviewer bias may be present due to working in rehabilitation centre where participants recruited; mostly males with limited variations in education.
Chan and Man [29]	To explore return to work and factors that hinder seeking or sustaining jobs from the viewpoint of clients with SCI.	Focus groups; purposive sampling from database; semi structured focus group discussion; content analysis and induction; Hong Kong.	2 groups: Employed: 5M and 1F; 29–45 years; 5 paraplegia, 1 quadriplegia; most in office or skilled work and, Unemployed: 8M and 2F; 26–53 years; most in manual or semi-skilled work pre-injury; at least 1 year post-injury.	Physical impairment, psychological, environmental factors were important factors in the processes of: job consideration and exploration; Job seeking, offering, and returning to work; Job maintenance and advancement; perceiving value in work.	Small sample limits generalisability, most unemployed participants had no post-injury work experience; impact of psychological issues difficult to verify due to study timeframe.
Fadyl and McPherson [30]	To identify factors that influenced return to work decisions for people with SCI.	Grounded theory; theoretical sampling; face-to-face in-depth interview (relatively unstructured); grounded theory coding, memo-ing and model development; New Zealand.	7M and 6F; 22–58 years; 4 wheelchair users, 9 walking; range 2 months–10 years since injury; mixture of working status, (numbers not stated).	Factors contributing to decisions about employment post SCI include: Ability to work given work demands and current resources (<i>emotional resources, physical and mental capability, seeing others in a similar</i>	Relevance of findings may be limited to similar settings; sample not fully representative of culturally diverse population.

Table 1 (continued)

Author(s), (Ref. no.), year	Study purpose	Methodological description (design; sampling; data collection; analysis; location)	Participants (male (M) and female (F); age range; type/extent of injury; time since injury; employment)	Themes reported	Author reported limitation/s
Manns and Chad [31]	To investigate how persons with a SCI view quality of life, and differences in views between persons with quadriplegia and paraplegia.	Focused ethnography; purposive sampling; face-to-face semi structured Interview; thematic analysis with member checking; Canada.	9M and 6F; age range 22–63 years; 8 paraplegia, 7 quadriplegia; mean 13 years since injury; 5 employed, 2 studying, 8 unemployed.	<i>situation, self-confidence, health, environmental factors, formal and/or informal advocacy and support</i> ; Presence of responsibilities or pressures that compete with work; Access to a suitable job; Whether work was of enough benefit to be worth pursuing.	Not reported.
Weitzner et al. [32]	To identify ways in which individuals living with SCI view and use their disabilities positively.	Secondary analysis of qualitative data from a larger study; modified grounded theory approach; Canada.	40M and 12F; age unstated; 20 since initial rehabilitation 3–17 + years; employment status not reported.	Self (<i>advocating for self, personal growth, work</i>); peers; disability community (<i>systematic advocacy, public education, organisational membership</i>); enabling aspects of disability.	Secondary data analysis; original data collected in 1999–2001– service systems, funding, access and people's recent experiences may differ.
Wilbanks and Ivanova [33]	To explore the factors facilitating adults with traumatic SCI re-joining the urban workforce.	Phenomenological approach; criterion sampling; face-to-face interview, photographs of participants' assistive technology; phenomenological data analysis; USA.	3M and 1F; 42–57 years; 3 cervical, 1 thoracic SCI; 24–37 years since injury; all wheelchair users; all in full-time employment.	Resources for re-joining the workforce (<i>early training resources, long-term support, assistive technology</i>); motivation for working (<i>intrinsic and extrinsic</i>); challenges of working; benefits of working.	Limitations for transferability: small sample, only people with successful return to work and long-standing SCI, urban setting with active job market.

Table 2 Critical appraisal of studies using framework adapted from Fossey et al. [34]

Criteria	Angel et al. [21]	Boswell et al. [22]	Chapin et al. [23]	Hammell [24]	Hay-smith et al. [25]	Leisifsrud et al. [26]	Bergmark et al. [28]	Chan et al. [29]	Fadyl et al. [30]	Manns et al. [31]	Weitzner et al. [32]	Wilbanks et al. [33]
Methodological rigour												
Congruence i.e. philosophical/theoretical fit	S	S	S	S	S	S	S	S	S	S	S	S
Responsiveness to context i.e. emergent design	S	S	S	S	S	S	S	S	S	S	S	S
Appropriateness of sampling and data gathering	S	S	S	S	S	S	S	S	S	S	S	S
Adequacy												
Sufficient sources of information to develop a full description	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Detailed description of the participants, selection and participation	Y	Y	Y	N	Y	Y	Y	N	Y	Y	N	Y
Iterative data gathering and analysis	S	S	S	S	S	S	S	S	S	S	S	S
Multiple sources of information used in analysis	Y	Y	N	Y	Y	Y	Y	U	Y	Y	Y	Y
Data gathering and report were sensitive to participants' language and views	Y	U	Y	Y	Y	Y	Y	U	Y	Y	U	Y
Transparency												
Transparent processes of data gathering and analysis	S	S	S	S	S	S	S	S	S	S	S	S
Corroborating, illuminating, and rival accounts explored	U	S	S	S	S	S	S	U	S	S	S	S
Data gathering and analysis privilege participants' knowledge	S	U	U	S	U	U	S	U	S	S	U	U
B. Interpretative rigour												
Authenticity												
A range of participants' views presented in their own voices	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Descriptions and interpretations of data are recognisable to those with experiences described	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Power relations in data collection and analysis considered	U	U	U	Y	U	N	U	U	U	Y	U	Y
Coherence i.e. between findings and interpretations	S	S	S	S	S	S	S	S	S	S	S	S
Reciprocity												
Analysis and interpretations shared with participants	U	U	N	U	U	U	U	U	S	S	U	U

Table 2 (continued)

Criteria	Angel et al. [21]	Boswell et al. [22]	Chapin et al. [23]	Hammell [24]	Hay-smith et al. [25]	Leisifsrud et al. [26]	Bergmark et al. [28]	Chan et al. [29]	Fadyl et al. [30]	Manns et al. [31]	Weitzner et al. [32]	Wilbanks et al. [33]
Participants involved in presenting the study	U	U	N	Y	U	U	U	N	U	N	N	U
Typicality												
Claims made for generalisability of findings to other knowledge, populations, or settings	L	L	L	N	N	L	N	L	L	N	N	L
Permeability of the researcher's influences												
Researcher's role is transparent	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Researcher's understanding changed by the phenomena studied	N	U	Y	U	U	Y	U	Y	U	U	U	Y
Researcher's intentions, preconceptions, values, or preferred theories evident in report	Y	U	U	N	U	Y	N	Y	N	U	Y	Y
Researcher's personal experience explicit in research process	N	N	U	Y	N	N	Y	U	N	U	U	Y

Y yes, N no, U unknown/not mentioned, S satisfactory/adequate level, L limited

and references. The first author manually removed duplicates from Endnote, leaving 283 studies to check for matching with the inclusion criteria. These 283 articles were then exported to a Microsoft word document for all three authors to read the titles and abstracts. After initial screening, 16 relevant studies were identified based on the study inclusion criteria. The full texts of each of these 16 articles were then thoroughly read, and 7 studies were selected based on their content being directly related to the meaning of work after SCI [21–27]. Despite meeting the initial selection criteria, eight articles were rejected as they did not include content relevant to the meaning of work; one more study was then excluded due to lack of participant quotations [27]. Through citation tracking (online), 6 more studies were identified that met the inclusion criteria [28–33]. All three authors reviewed and agreed upon the final selection of these 12 studies.

Stage 4: Charting data

Charting the data was completed in three stages. First, data were extracted from each paper for critical appraisal to understand and evaluate the quality of the reported research. The first author extracted key information about each study, using the following headings: *Author(s), year; study purpose; methodological description (design, sampling, data collection, analysis, and location); participant description (male, female; age range (years)/average; time since injury; level and extent of injury; unemployed, employed; and setting); overall findings; list of stated themes and author stated limitations.* A summary of the key information extracted about each study is presented in Table 1.

Secondly, the first author then used the guidelines described by Fossey and colleagues [34] to appraise the methodological and interpretive rigour of each study, as presented in Table 2 and summarised in the Results section. Despite variation in their quality, none were excluded on the basis of quality since all met inclusion criteria and reported sufficient data related to the meaning of work in quotations that could be used to identify themes.

Thirdly, the findings/results sections of all the selected studies were reviewed several times to understand the content focused on the meaning of work and quotations from participants. These quotations were then charted in a separate document for the final stage of collating and reporting results described below. While the first author developed the data extraction charts and undertook the data extraction and quality appraisal for each study, the three authors held regular meetings to review the data and make decisions at each step and to ensure the accuracy of the data extracted and summarised in Tables 1–4.

Stage 5: Collating, summarising and reporting the results

After the first round of data extraction, the quotations were reviewed multiple times by the authors, and grouped into three major themes and five categories based on their derived meaning (See Fig. 1). Each theme represents meanings expressed about work after SCI in reported quotations from across the 12 included studies. This process was conducted through a series of discussions amongst the authors until a consensus was reached.

Results

Study content overview

The studies included in this scoping review were conducted in 7 countries, with most study participants recruited using purposive sampling, while one study used theoretical sampling [30], and one used snowballing [24]. Across the 12 studies, the majority of study participants (70%) were men, but most studies included samples with men and women, differing types of paralysis and varying employment status. The exceptions were four studies that focused on men only [23], participants with tetraplegia only [24], only employed people with SCI [33], or only those who were unemployed [28]. Limited information was provided about participant characteristics or recruitment in three studies [21, 30, 32].

Six studies [21, 24, 25, 28, 30, 33] specifically mentioned the nature of injury was traumatic, and one study [26] described a mixed group of participants: 3 with non-traumatic SCI and 28 with SCI resulting from trauma. The remaining 5 studies implied injury was the origin of participants' SCI given their use of the term 'pre-injury' and no mention of disease-related causes. No study was excluded based on upper age limit or retirement age as this does not apply to many contemporary workers [35]. Participants ages ranged from 18 years to 73 where stated. One study included a participant over 70, and 3 studies included participants in their 60s. Time since injury ranged from 1–48 years except one study which included participants 2 months after injury. Table 1 provides a study overview.

Study quality appraisal

The reviewed studies were of variable quality, as shown in Table 2. All 12 studies reported research consistent with their chosen methodology, and were developed and adapted to respond to real-life situations within the social settings in which they were conducted. All adequately described the participant selection criteria, process of sampling, data

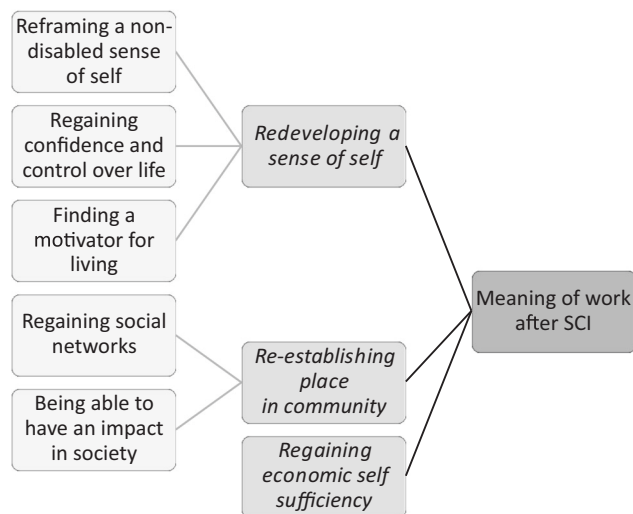


Fig. 1 Major themes related to meaning of work

collection and analysis. All but two studies [22, 29] used face to face interview data collection. All except two [23, 29] reported use of multiple data collection sources for analysis. All studies clearly described both the analysis processes and author participation in the generation of results, including how differences were managed and consensus reached. Only one study used an external auditor to review findings and interpretations [31], and three studies considered the power relations between the participants and authors during data collection and analysis [24, 31, 33]. While the researchers' role in the interpretive process was clear in all the studies, three studies explicitly described changes in authors' understanding or preconceptions of the phenomena studied [26, 29, 33]. Two studies reported use of member checking to increase reciprocity and interpretive rigour: Manns and Chad [31] sent their preliminary themes to the participants for checking, then revised them; and Fadyl and McPherson [30] used presentations and meetings to obtain stakeholder feedback on their findings.

Themes

Three major themes related to the meaning of work are presented in Fig. 1. Each theme is briefly described with illustrative quotations taken from the reported findings.

Redeveloping a sense of self

Work participation after SCI was described in a variety of ways by people with SCI related to how they viewed themselves. These include that work is a means of participation, reinventing oneself, mental stimulation, gaining a sense of purpose, self-satisfaction and personal growth. These personal meanings for return to work after SCI were

Table 3 Theme: Redeveloping a sense of self

Category	Quote (examples)
Reframing a non-disabled sense of self [22–26,30, 32, 33]	<p>“When I’m doing what I do best, I’m not disabled for that moment. And I think that’s more true when I’m working than at any other time.” [22]</p> <p>“It’s like building a puzzle and the piece is missing at the end The picture wouldn’t be complete without [work] It’s just part of my identity.” [23]</p> <p>“You know why I really want to work? So I can tell the world, tell other people, my friends and those that are much younger than me who are not working I can do it. Tell them I can do what they are doing. That’s the main thing in my mind.” [30]</p> <p>“I think it gives me encouragement that I’m doing something good with my life and I can see myself as a different person and I have more self-esteem which is important to me.” [24]</p> <p>“What is your profession? You can answer with pride – you are someone”. [26]</p> <p>“When I’m not working I’m a different person.” [32]</p> <p>“I’m proud that I’ve worked and maintained a job just like other people.” [33]</p>
Regaining confidence and control over life [24–26,28, 30, 32, 33]	<p>“And I need to get back to work because I need to, I need it just to get, for the mental stimulation but I need to take back some control, and I’m getting back that control and that confidence through work. You know like my confidence is slowly coming back, the more I go to work.” [30]</p> <p>“I find a lot of meaning in the work that I’m doing at school.” [24]</p> <p>“Builds your confidence up. Feel better about myself.” [25]</p> <p>“It means a lot to me that other people need my expertise.” [26]</p> <p>“And I’ve had jobs that I’m generally proud of.... Those things have been image enhancing for me.” [32]</p> <p>“Not through temporary solutions in some way but actually managing to get things together for a day by oneself. This is what needed, I think this what it takes for me to be able to take the next step in life.” [28]</p>
Work as a motivator for living [21,23–25,30–33]	<p>“We all need something to wake up for look forward to getting up every morning. There were many years [in the institution] when I didn’t, you know, there was nothing to look forward to.” [24]</p> <p>“It’s important for me to continue the fight towards equity.... And that’s part of the reason why I work at [name of workplace].” [32]</p> <p>“I’ve got at least six or seven friends that have passed away, and a large part of those were people who gave up on life and stayed home after they were injured. They never got a job, they tried to live off the government and so they just withered away... they did not maintain themselves.... I think the good part of work is what keeps you going.” [33]</p> <p>“At least having a job makes you get up and gives you something to look forward to—even if you don’t really like it some days.” [31]</p> <p>“We have to see how much he can work when he gets back. Then we must decide whether we will have to sell the farm. That helped me a lot, because it gave me an incentive to get better.” [21]</p>

categorised as related to three distinct issues: *reframing a non-disabled sense of self*, or the possibility of seeing oneself as more than a disabled person, with functions and capacities beyond their disability; *regaining confidence and control over life*, that is developing a sense of being competent to manage oneself again and *work as a motivator for living*, or something to look forward to, keep people going and give a sense of purpose to life. Illustrative quotes are presented in Table 3.

Re-establishing place in community

Work was described as an important marker of “being part of society” [25], a means for people with SCI to re-establish their place in the community. For people with SCI who participated in the reviewed studies, work had two social meanings. Firstly, work provided *an opportunity to get out amongst people again* and into a social world beyond one’s home, so that it served to reduce the potential for social isolation. Secondly, through work, participants across a number of the studies emphasised *being able to contribute or to give back to society* in ways that were not only meaningful to them but also valued by others. These meanings of work are further illustrated by the quotations in Table 4.

Regaining economic self sufficiency

Re-joining work after injury was seen as a means of becoming self-sufficient, and making an economic contribution by people with SCI who participated in the reviewed studies. For some participants, returning to work was an economic necessity, or earning one’s own money represented a more respectful and respected way of living than relying on social welfare for income support. Some participants also expressed concerns about the potential impact of work on their disability-related social welfare benefits, and about not being able to earn enough to support themselves (Table 4).

Discussion

Psychosocial factors are acknowledged as important influences on employment outcomes following SCI [4, 13], with the meaning derived from work being one factor that might be altered following disability [18]. By focusing on the meanings of work from the perspectives of people with SCI reported in 12 qualitative studies, this review sought to enhance understanding of the aspects of meaning that are important in work participation after SCI. In particular, the meanings of work appear to act as a ‘motivator’ to inspire and direct one’s pursuit of work participation after SCI, and

to seek a valued way of life in one’s community. The re-development of these meanings in work for people after SCI involves integrating inner experiences of themselves and their capacities, with the outer possibilities for working [21, 30]. Both are reflected in the three themes of meaning in work identified in this scoping review: *redeveloping a sense of self*, *re-establishing place in community*, and *regaining economic self-sufficiency*, each of which is briefly discussed.

Across the 12 studies reviewed, the majority of study participants described work as personally important for their sense of self. Their work identity overrode their sense of being disabled and they felt pride in seeing themselves as workers, so that work gave them a sense of taking control of their lives, and a sense of purpose and routines in daily life, helping motivate them for the future. While this aligns broadly with themes across disability groups for whom work is viewed as important as a source of identity [18], the findings of this scoping review add depth to our understanding of how persons with SCI re-develop their sense of self. Specifically, regaining confidence and control in life, and work as a motivator for living and reframing disability appear important. As work offers a means of building confidence in life after injury [22, 28] and is associated with improved life satisfaction and quality of life [13], the emphasis placed on the re-construction of an identity as a worker by participants across a number of studies in this review (e.g. 24, 25) endorses the importance of opportunities for people with SCI to experience work and to develop their own sense of work readiness and job options, during and beyond rehabilitation [23, 28]. This also supports the argument for earlier or timely access to vocational interventions after injury [30].

This review also found that work matters as an important outward indicator of fitting in socially, and is valued not only as a means of connecting with other people and social environments [25, 26, 33], but also of engaging in reciprocal relationships and contributing to society in a way that is respected by others [24, 25, 28, 29]. Further this review adds to previous knowledge in highlighting that work holds meaning as a way to re-establish one’s place in the community not only through social connections with others, but also as an active agent in making an impact within society. While work is seen as a means to connect with others, the reverse is also the case: social supports and networks, including peers, serve to connect people with their work potential and possibilities after SCI [27, 29, 30, 32]. This suggests rehabilitation providers might do more to support job exploration and maximise consideration of potential work options by fostering connections between people with SCI through active involvement of peer mentors and networks - ideas that are particularly relevant to job-seekers with spinal cord injury [30].

Table 4 Themes: re-establishing place in community, and regaining economic self-sufficiency

Theme category	Quote (examples)
Re-establishing place in community	"(Being employed offered) the social side and all the people at work." [25]
Regaining social networks [25, 26, 33]	"Getting out amongst people again", is that it "builds your confidence up." [25] "Work is both activating and social." [26] "If you sat at home the world would be much smaller... work allows you to see a different perspective than if you were just at home." [33] "The advantage of working is the network of people that you have around.... if you're without work, you're socially isolated." [33]
Being able to have an impact in society [22, 24, 26, 32, 33]	"I have found that I can achieve almost as much now as before my disability... That increases my quality of life a great deal. When I don't have anything to give, when I'm not able to contribute, that's going to be the end (of quality of life)." [22] "I'm able to contribute... I can do things that will make a difference for other people with disabilities. I am able to contribute. And I'm able to contribute in a way that's not only meaningful to me, but I've been told it's meaningful to others too." [24] "It is important to have a job in order to participate in society. Without a job you are outside society. I am not productive for society." [26] "I love what I do and I think I'm having an impact... I like being part of the world and I would've been the same had I not been injured, I just took a different path." [33] "When you have a job, you participate, you contribute to society. I would like to work and contribute... If you want to participate in society, you also have to make a contribution. If not, you are just a free rider." [26] "I think what I do and what [the television show I work on] represents has the potential to be a positive, an influence for positive change." [32]
Regaining economic self sufficiency [21, 25, 26, 29, 30, 32, 33]	"If you have some self-respect, I believe it is important for most people to be in employment and earn their own money. This holds true regardless of whether it is easy to be on social welfare." [26] "I'm going to say money is not the main part but financially it is, I do not like being on the benefit, it sucks, but I think what drives me is that I have something there to offer." [30] "Earning a living... with mortgage rates and the price of everything going up, it was kind of a necessity getting back to work." [25] "So the opportunity to employ myself, get money, and to feel a part of the vast scheme of things out there is critical for me." [32] "So you really have to think things out to make sure that when you do go back to work that you're able, not only to make an income but that you are able to have the necessities that will allow you to live, you know, for example [medicine]." [29]

Paid work is a major source of income, so it is unsurprising that regaining economic self-sufficiency is one of the meanings ascribed to work by participants in the reviewed studies. More specifically, engaging in the workforce was seen to bring not only immediate monetary benefit but also a sense of self-respect and the possibility of becoming economically self-sufficient. This review also identified many contextual factors as contributing to whether or not work held the possibility for regaining a sense of self-sufficiency for persons with SCI, including whether they had access to suitable work to earn sufficient income to support themselves [30], welfare policy issues, financial hardship due to unemployment, and inaccessible transport and environments. Hence, context needs to be accounted for when considering the relative importance of economic self-sufficiency in comparison to other meanings of work for individuals. For instance, in a Swiss study of determinants and consequences of having paid work after SCI, social reasons were among the most frequently reported for working after SCI [36]. Yet, this and the reviewed studies all being conducted in relatively high-income countries, so that the meanings of work participation in lower-income countries, particularly in relation to achieving a sense of self-sufficiency, may differ from those reported here.

Overall, the scoping review findings have provided detailed information for understanding the meaning of work from the perspectives of people with SCI. Based on a review of factors contributing to work-ability for injured workers, Fadyl et al. [37] used the ICF framework to propose a model of body function, activities and participation, and environment related factors that contribute to work ability. The findings of this scoping review indicate that greater depth of information from a meaning perspective also needs consideration. Models based on ICF might usefully be extended to take account of meaning as an influence on work participation, which in turn could encourage development and use of tools to further explore work meanings in SCI rehabilitation research. These scoping review findings also have important practice implications for clinicians working with people with SCI. Given SCI rehabilitation programs emphasise a patient centred and goal oriented approach in which the patient plays a central role [38]; the findings could be used by clinicians to guide exploration of the meanings of work with patients in SCI rehabilitation and to enhance patient centred goal-setting related to work. This may also be useful in introducing the idea of return to work to patients earlier in inpatient rehabilitation, which other recent studies have suggested as having potential for enhancing post-injury work participation [39, 40].

There are some limitations of this review. First, the search strategy generated a relatively large number of studies, few of which met the criteria for inclusion. This was

partly because the search terms related to 'meaning' (see Stage 2) were broad, and identified studies on topics such as quality of life that did not address the scoping review question. Hand searching and citation tracking are used to complement database searches and to enhance the comprehensiveness of scoping reviews. As in a previous related review [18], this approach identified a more substantial number of relevant papers for review, but it cannot be known for certain whether all potentially relevant articles were considered for inclusion. Second, the selection criteria excluded grey literature to focus on published, peer-reviewed qualitative evidence, a drawback of which would have been to exclude first-person accounts, narratives and opinions of individuals with SCI. Third, Arksey and O'Malley [19] suggest consultation with consumers and practitioners can enhance scoping reviews. We support this view; indeed, consumer and practitioner views of the meaning of work following SCI are being sought in subsequent research informed by this scoping review. Fourth, the scoping review findings are inevitably limited by the nature of the data reported in the articles. Notably, most studies involved single interviews with participants, and so did not investigate changes in how participants experienced work or its meanings over time. More studies of a longitudinal nature would be beneficial to identify how the meanings of work may change during job-seeking and whilst working, so as to better understand the barriers and facilitators to sustainable employment [25, 28, 29], how identities are successfully modified through pursuing employment post-injury, and how clinicians can support this process [25]. Lastly, often the reviewed studies involved mixed participant groups, meaning that it was not possible to differentiate the meaning of work according to gender. This supports Nolan's view [41] that further investigation of the influence of gender on the work experiences of people with SCI is needed, particularly given men and women with SCI may have differing patterns of workforce participation. Similarly, their type of injury, social or work status may impact the meanings that people with SCI ascribed to work. Therefore, future exploration of these variables is important to more effectively target meaningful vocational interventions.

Conclusion

This scoping review aimed to explore what is known about the meaning of work after spinal cord injury from the existing research literature. Varied meanings of work were identified, including redeveloping a sense of self, re-establishing a place in the community, and regaining economic self-sufficiency. These findings can guide and support vocational programs to explore ideas about work, why

and how work may be meaningful with people with SCI, so as to identify individually and contextually relevant work. This review also suggests models of factors contributing to work ability and participation could usefully be extended to take account of the meanings of work, so as to enhance patient centred approaches in SCI rehabilitation.

Compliance with ethical standards

Conflict of interest The authors declare that they have no competing interests.

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