A Life Course Perspective to Spinal Cord Injury and Employment Participation in Canada

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Background: Few studies have examined life course differences in the employment of Canadians with spinal cord injury (SCI). **Objective:** To compare employment participation of young/middle-aged and older adults with SCI and to examine the association between employment and demographic and health factors, SCI-related needs, and social role participation at the 2 life phases. **Methods:** A sample of young/middle-aged (18-54 years; *n* = 959) and older adults (55-64 years; *n* = 364) with SCI was recruited as part of a larger Canadian community survey. Pre- and postinjury employment were compared. Demographic and health factors, number of unmet SCI needs, and social role participation were collected and compared by life phase and employment status. Two multivariable logistic regression models were conducted and compared for young/middle-aged and older adults. **Results:** Close to one-third of participants with SCI were working post injury (32%), a decline from the 62% of respondents working prior to their injury. Participants were more likely to work in less physically demanding job sectors including business/administration or health/science/teaching. An examination of life phase differences showed that young/middle-aged adults were more likely to be employed post injury (36%) when compared to older respondents (12% employed) who were more likely to report being retired (43%). Multivariable analyses revealed that for young/middle-aged adults, being married, attaining a postsecondary education, and having fewer unmet SCI needs were related to employment. Among older adults, having a traumatic injury was related to involvement in paid work. For both young/middle-aged and older adults, participating in more social roles was related to working. **Conclusion:** A life course perspective is important to understanding similarities and differences between young/middle-aged and older adults with SCI in their employment participation. Tailored programs and policies should be designed to promote labor force involvement at different phases of the working life course. **Key words:** *employment, life course differences, spinal cord injury*

Historically, spinal cord injury (SCI) has significantly limited labor force participation in Canada.[1-3] Recent advances in treatment and self-management may also mean that people with SCI are not only living longer but have more opportunities to participate in a greater range of social roles including employment.[2,4,5] To date, a majority of research on the employment of people with SCI has focused on general adult samples (18 to 65 years), and few studies have examined how work experiences may differ based on a person's life phase. Accordingly, we lack the evidence required to promote employment at different stages of the working life course. Drawing from a recent Canadian community-based survey, this study will fill a critical knowledge gap by comparing the employment participation of young/middle-aged and older adults living with SCI.

Employment is related to the health and quality of life of all working-aged Canadians, including those with SCI. Participating in paid work is a means to economic and residential independence. It provides individuals with the opportunity to generate income, access health and social benefits, interact with others, foster structure and routine for their daily activities, and build self-identity.[6-8] For people with SCI, employment is also related to improved community independence, fewer secondary health complications, and greater self-confidence that may also benefit involvement in other important social roles. [2,9-15] From a societal

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perspective, encouraging participation in the labor market also helps to minimize significant indirect costs associated with SCI, including lost wages and tax revenue and long- and short-term disability costs.[16]

Despite its importance, data on the relationship between SCI and employment in Canada are scarce. In 1996, a community survey of close to one thousand working-aged adults with SCI (n = 966) found that 38% were employed in comparison to 65% of their age-matched able-bodied peers.[1] Similar employment rates (n = 357; 31% employed) were identified in another Canadian community survey conducted in 2007, potentially suggesting that labor force trends have stayed relatively constant.[12] Descriptive data from Canada and other industrialized countries also show that people with SCI are less likely to return to their preinjury job and report underemployment, including involuntary part-time work, lower wages, and jobs that do not utilize their skills.[1,10,17,18] Yet, people with SCI also report positive perceptions toward employment participation. Those who are able to find paid work report high levels of job satisfaction,[1,17] while those not working indicate that employment is an important postinjury rehabilitation goal.[2,19]

Several studies conducted primarily outside of Canada have identified demographic, health, and work context factors that are significantly related to employment. More education and preinjury work experience are associated with a greater likelihood of finding and maintaining employment post injury.[1,9,17,20,21] Also frequently cited, less injury severity or neurological impairment, as well as lower pain, fatigue, and activity limitations, are associated with a higher likelihood of working.[10,13,17,18,20,22] Several work context factors including greater workplace social support, availability of suitable transportation, access to and within workplaces (eg, presence of ramps, curb cuts on sidewalks and elevators), modified workspaces (eg, wheelchair accessible desks and adapted computers), and flexible scheduling can increase the likelihood of being employed for people with SCI.[1,23,24]

Age at onset and length of disability have also been identified as being important to employment. Research suggests that younger age and longer length of disability are associated with an increased likelihood of being employed.[9,13,20] However, those who stay unemployed for a decade or longer post injury have a lower likelihood of returning to work.[13,22] People with SCI are also more likely to report early retirement or exit the workforce at a younger age compared with their nondisabled peers.[18,22]

Although complex, the relationship among age, length of SCI, and employment can be viewed through the lens of a life course perspective. A life course perspective posits that a person's age is associated with socially defined milestones that shape their involvement in different roles and the perceived meaning derived from involvement in those roles.[25,26] For instance, the younger and middle-aged adult life phase is often characterized by increasing engagement in a range of highly valued vocational and social roles such as finding full-time work, getting married, or raising children.[27] Involvement in these various roles is often associated with greater time demands or pressures.[28] In comparison, older adults at the later phase of their careers may be moving into another phase of life in which they could be preparing to withdraw from their involvement in multiple roles or reprioritize those that are most important.[25,26,28-30] SCI and employment research has not typically examined changes in roles across the life course. Also, commonly accessed disability models that guide research and practice often focus on age as a personal factor related to an increased likelihood of poorer functioning and may neglect the adaptations people may make to foster participation in valued social roles.[28,31] Consequently, for people living with SCI, the interrelationship between their injury, life phase, and involvement in important social roles like employment is not completely understood and requires examination.

The objective of this study is to apply a life course perspective to understand the work experiences of Canadians with SCI. In particular, this study will compare employment participation of young/middle-aged (18 to 54 years) and older adults (55 to 64 years). It is anticipated that young/middle-aged adults will be more likely to participate

in employment post injury when compared to respondents in the older life phase who will be more likely to retire. Second, this study will examine the relationship between demographic and health factors, SCI-related needs, and employment at the 2 life phases. It is anticipated that regardless of the life phase, having a more severe injury and more unmet needs will be associated with a lower likelihood of participating in employment. The relationship between involvement in a range of social roles and employment will be also examined. It is expected that young/middle-aged adults will be more likely to be involved in a greater number of social roles compared to their older counterparts. However, participation in more social roles will create demands related to lower employment.

Methods

More than 1,300 working-aged adult (N = 1,323) Canadians with SCI were selected from a larger nationwide community survey.[32] This included 959 young/middle-aged respondents (18-54 years; mean [*SD*] age = 41.0 [9.6] years) and 364 older respondents (55-64 years; mean [SD] age = 59.1 [2.9]). A majority of participants completed an Internet-based questionnaire that collected information on demographic variables, injury characteristics, and health factors. Also, participants were asked about their employment status pre and post injury (within the last 12 months from the date of the survey). In addition, information on the number of unmet SCI-related needs (eg, transportation, income support, job training, health care, counseling, etc) and the social roles in which they participated at the time of the survey (eg, hygiene, self-management, carrying out responsibilities in the home, leisure and recreational activities, etc) was collected. Specific details on participant recruitment, survey development, measurement, and research ethics can be found in another article in this issue.[32]

Data analysis

Univariate analyses including frequencies, means, and standard deviations were conducted. Bivariate analyses including equality of proportions, and *t* tests were also performed for comparative purposes. Pre- and postinjury employment status was compared by life phase. Subsequently, demographic and health factors, SCI-related needs, and social role participation were compared by life phase and postinjury employment status.

Multivariable logistic regression analyses were conducted to examine the relationship among demographic, health, SCI-related needs, the number of social roles in which a person participates, and employment. Two models were created to compare findings between young/middle-aged and older adult respondents. In both models, a 2-level dichotomous categorical outcome variable (employed and not working) was developed. Participants who classified their postinjury employment status as not employed, student, homemaking, or on long-term leave were combined to produce the not working group that was set as the reference category. Independent variables were included in the models if they were related to employment status ($P < .05$) at the bivariate level. Analyses were carried out using SAS 9.3 (SAS Institute, Cary, NC) and IBM SPSS 21.0 (IBM Corp., Armonk, NY).

Results

Table 1 describes the employment status of participants pre and post injury. Prior to their injury, a majority of respondents were employed (62%). A greater proportion of older adults (69%) were working pre injury when compared to their younger counterparts (60%) ($P < .01$). Post injury, 32% indicated participating in employment, 20% were involved in other roles (eg, homemaking, volunteering), and 20% were retired. As expected, a greater proportion of young/middle-aged adults were employed post injury (32%) compared to those in the older life phase (22%) ($P < .001$). Older participants were also more likely to report retiring post injury (43%). Across both life phases, the proportion of people working in job sectors that have more physical demands such as trades/transportation (51% pre injury; 14% post injury) and sales/service (20% pre injury; 15% post injury) declined. In contrast, involvement in

Table 1. Summary of pre- and post–spinal cord injury (SCI) employment status compared by working age young/middle and older adults

Employment status	Total sample (18-64 years) (*N* = 1,323) *n* (%)	Young/middle adults (18-54 years) (*n* = 959) *n* (%)	Older adults (55-64 years) (*n*= 364) *n* (%)	*P*[a]
Preinjury employment				
Employment status pre injury				
Education	108 (8.2)	88 (9.2)	20 (5.5)	.038
Employed	824 (62.3)	574 (59.9)	250 (68.7)	.004
Not working or enrolled in education	100 (7.6)	55 (5.7)	45 (12.4)	.000
Preemployment age (< 18 years) and not in education or employment	291 (22.0)	242 (25.2)	49 (13.5)	.000
Job sector pre injury[b]				
Business/administration	243 (29.5)	167 (29.1)	76 (30.4)	.768
Health/science/teaching	170 (20.6)	107 (18.6)	63 (25.2)	.041
Sales/service	161 (19.5)	122 (21.3)	39 (15.6)	.074
Trades/transportation	420 (51.0)	300 (52.3)	120 (48.0)	.294
Postinjury employment				
Employment status post injury[c]				
Education	80 (6.1)	77 (8.1)	3 (0.8)	.000
Employed	426 (32.3)	345 (36.1)	81 (22.3)	.000
Retired or >65 years of age and not employed	268 (20.3)	112 (11.7)	156 (43.0)	.001
Not working				
Involvement in other roles (eg, homemaking or volunteering)	263 (20.0)	197 (20.6)	66 (18.2)	.360
Looking for paid work	41 (3.1)	33 (3.5)	8 (2.2)	.321
Other	240 (18.2)	191 (20.0)	49 (13.5)	.008
Job sector post injury[d]				
Business/administration	160 (37.6)	131 (38.0)	29 (35.8)	.814
Health/science/teaching	151 (35.4)	121 (35.1)	30 (37.0)	.839
Sales/service	63 (14.8)	50 (14.5)	13 (16.0)	.856
Trades/transportation	59 (13.8)	48 (13.9)	11 (13.6)	.999
Not currently working in a specific job sector[e]	58 (13.6)	45 (13.0)	13 (16.0)	.596

[a]Bivariate analysis conducted using test of equality of proportions and *t* tests.

[b]Job sector estimates are based on 824 employed participants. Participants may have reported working in more than 1 job sector (1 sector = 74.6%; 2 = 16.0%; 3 = 3.5%; 4 = 0.8%; don't know = 2.5%; prefer not to answer = 2.2%).

[c]Employment status within the last 12 months of completing the survey.

[d]Job sector estimates are based on 426 employed participants. One may have reported working in more than 1 job sector (1 sector = 65.7%; 2 = 13.6%; 3 = 1.6%; 4 = 0.9%; none = 13.6%; don't know = 2.1%; prefer not to answer = 2.3%).

[e]Participants who reported that they were employed within the last year but were not working in a particular job sector at the time of the survey.

job sectors with fewer physical job demands like health/science/teaching (21% pre injury; 35% post injury) and business/administration (30% pre injury; 38% post injury) increased.

As shown in **Table 2**, a participant's preinjury work status played a role in determining labor force involvement post injury. Among the respondents who were working pre injury, 29% returned to employment post injury, 46% were not working, and 21% had either retired or were over 65 years of age and not working. Among those who were under the age of 18 years at the time of their injury, 43% transitioned into employment post injury and 34% were not working. Few participants who were not working pre injury were able to find employment post injury (17%).

Demographic and health characteristics, SCI-related needs, and social role participation are described and compared by life phase and postinjury employment status in **Table 3**. A

Table 2. Description of postinjury employment status based on preinjury employment of working-age respondents with SCI

	Postinjury employment status			
Preinjury employment status	**Employed** ***n*** **(%)**	**Education** ***n*** **(%)**	**Retired or >65 years and not employed** ***n*** **(%)**	**Not working** ***n*** **(%)**
Preemployment age (<18 years) and not in education or employment	125 (43.0)	33 (11.3)	34 (11.7)	99 (34.0)
Education	46 (43.0)	16 (15.0)	18 (16.8)	27 (25.2)
Employed	238 (29.0)	31 (3.8)	173 (21.1)	379 (46.2)
Not working	17 (17.2)	0 (0.0)	43 (43.4)	39 (39.4)

majority of respondents were male (66%), had a postsecondary education (66%), and were living with another person. Half of respondents were married. Participants reported living with their injury for an average of 18 years. Most were paraplegic (56.8%) and had injuries of traumatic etiology (76%). Respondents indicated low physical health (mean [*SD*] Short Form-12 [SF-12] Physical Component Score = 33.3 [8.6]) and moderate mental health (mean [*SD*] SF-12 Mental Component Score = 50.6 [11.6]). On average, participants reported 3 unmet SCI-related needs (out of a possible 13) and participation in 21 social roles (out of a possible 26).

At the bivariate level, few differences existed when demographic and health factors were compared between respondents in young/middle-aged and older adult life phases. Young/middle-aged adults did report having a significantly greater number of unmet SCI-related needs ($P < .001$) (**Table 3**).

Table 3 shows the sample characteristics compared by employment status. Findings show that involvement in paid work was significantly related to younger age ($P < .001$), being married ($P < .001$), and having a postsecondary education ($P < .001$). Although nonsignificant, females ($P = .54$) and those living with another person ($P = .25$) were more likely to not be employed. Health factors related to employment included longer injury duration ($P < .001$), a less severe SCI classification ($P < .05$), greater self-reported health ($P < .001$), and higher physical and mental health ($P < .001$). Reporting fewer unmet SCI-related needs ($P < .001$) and participating in a greater number of social roles ($P < .001$) were also related to working.

Variables significantly related to employment at the bivariate level were carried forward in multivariable analyses presented in **Table 4**. In addition, gender, living with another person, and tetraplegia were added to the models to further examine their relationship with employment at the multivariable level. Young/middle-aged respondents who had a postsecondary education (odds ratio [OR], 2.83; 95% CI, 2.00-4.02) or were married (OR, 1.88; 95% CI, 1.30-2.72) were more likely to be employed. In addition, among young/middle-aged respondents, a significant relationship was also identified between employment and unmet SCI needs (OR, 0.89; 95% CI, .83-.95). An examination of health factors showed that for older adults, having a traumatic injury was related to a greater likelihood of being employed (OR, 2.03; 95% CI, 1.02-4.07). Although physical health was related to employment status, the OR was approaching 1, suggesting that the finding may have been negligible. Participating in a greater number of social roles was related to involvement in paid work for young/middle-aged (OR, 1.18; 95% CI, 1.11-1.25) and older-aged adults (OR, 1.32; 95% CI, 1.17-1.49). Both models exhibited goodness-of-fit and moderate Nagelkerke R^2 values of .27 (young/middle-aged model) and .26 (older adult model).

Discussion

Findings from this Canadian community survey draw attention to the difficulties people with SCI can face in finding and maintaining paid work. In particular, this study underscores several notable life phase differences in employment participation when comparing young/middle-aged respondents to those in the older life phase. Along with being married, having fewer unmet SCI-related needs was associated with working among young/middle-aged adults. Meanwhile, retirement was the main reason for not working in the older working-age group. For both life phases, participating in a greater range of social roles was related to employment. Findings from this study will inform future research and the development of critical policies and programs that promote employment participation across the working life course.

Not surprisingly and consistent with previous literature, having an SCI was associated with restrictions to employment participation and challenges with returning to work. Findings show that close to one-third of respondents (32%) reported being employed compared to 62% of able-bodied Canadian adults.[33] Postinjury employment was especially limited among persons not working pre injury, highlighting the importance of past experience in the labor market. The proportion employed in this study was comparable to estimates from previous community-based surveys.[1,12] Similarities in employment between studies might suggest an absence of novel research and practice aimed at reducing limitations to paid work for Canadians with SCI. One way to enhance current research is to investigate the role of work context variables (eg, workplace social support, job demands, schedule, and pace of work).[23] An improved understanding of work context factors will help rehabilitation professionals and policy makers better understand the barriers and facilitators to employment beyond the role of injury characteristics or health factors and inform the development of comprehensive employment interventions.

Coupled with an increasingly aged SCI population in Canada, findings show that working-age older adults are likely to report retiring post injury.[34] Although a reduced work capacity and withdrawal from roles like employment might be typical of this age group,[25,28,35,36] there is a risk that older adults with SCI might be retiring prematurely or choosing to not return to work post injury. As indicated in research of other disabling conditions, work disability in the older life phases may have significant negative implications for physical and psychosocial well-being and long-term loss of income.[37,38] Research should be conducted to better understand the reasons for work cessation among older workers with SCI to inform the development of targeted solutions to delay potential premature retirement.

A comparison of findings from the multivariable models reveal several interesting life course differences between young/middle-aged and older respondents. Potentially highlighting the role of support, married young/middle-aged adults were significantly more likely to report being employed. The material and emotional support provided by marriage, such as assistance with daily routines, rides to work, or encouragement, may be particularly valuable for persons managing their injury while also participating in employment at early and middle career phases. As expected, young/middle-aged respondents who were employed reported having fewer unmet SCI-related needs. This finding could indicate the potential benefits of meeting the diverse and specialized requirements that people with SCI often have, such as transportation, job training, health care, and counseling. In contrast, by working, participants may have access to resources like income, social insurance, or health benefits that may help to satisfy unmet needs. Longitudinal research should be conducted to determine the direction of the relationship between SCI-related needs and employment in young/middle-aged adults with SCI.

Having a traumatic injury was related to employment for older adults. Nontraumatic SCI typically has chronic etiologies such as vascular changes, tumor compression, inflammation, or degeneration and can be also be related to comorbidities (eg, diabetes or cardiovascular diseases) that can persist following paralysis

Table 3. Sample characteristics compared by life phase and employment status among working-age participants

		Life phase			Employment status		
	Total working-age sample (*N* = 1,323)	**Young/middle-aged adults (18-54 years) (*n* = 959)**	**Older adults (55-64 years) (*n* = 364)**		**Employed (*n* = 426)**	**Not working[a] (*n* = 897)**	
	n* (%) or *M* ± *SD	***n* (%) or *M* ± *SD***	***n* (%) or *M* ± *SD***	***P*[b]**	***n* (%) or *M* ± *SD***	***n* (%) or *M* ± *SD***	***P*[b]**
Demographics							
Age, years	46.0 ± 11.6	41.0 ± 9.6	59.1 ± 2.9	.001	44.5 ± 10.4	46.7 ± 12.1	.001
Female	444 (33.6)	334 (34.8)	110 (30.2)	.129	127 (29.8)	317 (35.3)	.054
Education							
High school or less	450 (34.0)	313 (32.6)	137 (37.6)	.099	80 (18.8)	370 (41.2)	.001
Vocational training	241 (18.2)	165 (18.4)	76 (17.8)	.143	76 (17.8)	165 (18.4)	.867
University or college	493 (37.3)	368 (38.4)	125 (34.3)	.197	207 (48.6)	286 (31.9)	.001
Postgraduate	131 (9.9)	88 (9.2)	43 (11.8)	.183	63 (14.8)	68 (7.6)	.001
Married or living as if married	644 (48.7)	437 (45.6)	207 (56.9)	.003	247 (58.0)	397 (44.3)	.001
Living with another person	946 (71.5)	702 (73.2)	244 (67.0)	.031	314(73.7)	632 (70.5)	.246
Non-White	103 (7.8)	80 (8.3)	23 (6.3)	.266	25 (5.9)	78 (8.7)	.092
Personal income[c]							
Less than $20,000	417 (31.5)	307 (32.0)	110 (30.2)	.575	48 (11.3)	369 (41.1)	.001
$20,000-$39,999	310 (23.4)	228 (23.8)	82 (22.5)	.689	97 (22.8)	213 (23.7)	.747
$40,000-$59,999	205 (15.5)	137 (14.3)	68 (18.7)	.059	91 (21.4)	114 (12.7)	.001
More than $60,000	207 (15.6)	152 (15.8)	55 (15.1)	.806	137 (32.2)	70 (7.8)	.001
Undeclared	184 (13.8)	135 (14.0)	49 (13.5)	.842	53 (12.4)	131 (14.5)	.328
Health							
Years post injury	18.1 ± 13.2	16.1 ±11.3	23.3 ± 16.1	.001	20.3 ± 13.0	17.0 ± 13.2	.001
Tetraplegia	571 (43.2)	429 (44.7)	142 (39.0)	.221	172 (40.4)	399 (44.5)	.177
Injury classification (AIS)[d]							
A, B or C (tetraplegia)	373 (31.5)	299 (34.7)	74 (22.8)	.001	122 (30.8)	251 (31.8)	.855
A, B or C (paraplegia)	555 (46.8)	392 (45.5)	163 (50.3)	.221	180 (45.5)	375 (47.5)	.924
D (all)	257 (21.7)	170 (19.7)	87 (26.9)	.014	94 (23.7)	163 (20.7)	.110

(continued)

Table 3. Continued

Traumatic injury	1,008 (76.2)		244 (67.0)	.001	348 (81.7)	660 (73.6)	.002
Self-reported health (1-5)	3.1 ± .94	3.1 ± .95	2.9 ± .92	.006	3.2 ± .93	2.9 ± .94	.001
SF-12 Component Score							
Physical (0-100)	33.3 ± 8.6	33.8 ± 8.5	32.0 ± 8.6	.001	35.7 ± 8.9	32.2 ± 8.1	.001
Mental (0-100)	50.6 ± 11.6	50.5 ± 11.7	50.8 ± 11.4	.677	52.9 ± 10.3	49.5 ± 12.0	.001
SCI-related needs							
Unmet needs (0-13)	2.9 ± 2.7	3.1 ± 2.8	2.6 ± 2.4	.003	2.2 ± 2.4	3.3 ± 2.8	.001
Social role participation							
No. of social roles (0-26)	21.2 ± 4.0	21.3 ± 4.1	21.0 ± 3.6	.176	23.0 ± 3.4	20.3 ± 4.0	.001

Note: SF-12 = Short Form-12.

[a]Not working group includes respondents who were unemployed, looking for work, students, retired, or participating in other domains.

[b]Bivariate analyses conducted using *t* test in case of continuous variables or *P* value for test for equality of proportions in case of categorical variables.

[c]Income given in Canadian dollars.

[d]An estimated American Spinal Cord Injury Association Impairment Scale (AIS) grade was possible for only 1,185 participants.

and may further limit working at later career phases.[39-41] More studies are required to compare the employment of people living with traumatic and nontraumatic injuries. Unexpectedly, no other injury characteristics were significantly related to working. It may be that advancements in treatment and therapy provided to Canadians with SCI may have reduced the role of health factors as barriers to employment. It may also be that variables that are proxies to health such as unmet SCI needs or the various social roles in which people with SCI participate were important to employment. To expand on the findings from this study, a greater range of factors related to work disability such as work context variables or psychosocial perceptions (eg, social support in and outside the workplace, perceived independence or self-efficacy) should be examined.

For both young/middle-aged and older respondents, participation in a greater range of social roles was related to employment. Because the community survey was cross-sectional, the direction of the relationship could not be ascertained. It may be that participation in employment contributes to financial resources and self-confidence that supports participation in other valued social roles.[28,42] Alternatively, participating in roles such as parenting or marriage may encourage people with SCI to find paid work and attain financial independence to further support their involvement in those domains of life. Finally, the relationship between community participation and employment could be reciprocal and reinforce one another. Participation in a greater range of social roles may improve the likelihood of being employed, which further supports participation in different domains of life. Additional research is needed to better understand the interrelationship between social role participation and employment. Nonetheless, encouraging involvement in a range of social roles might be a potentially important rehabilitation goal that could benefit participation in paid work for people with SCI.

Study limitations should be acknowledged, including the sampling strategy, cross-sectional design, measurement of work outcomes, and the recruitment of a relatively small number of young adults. Although extensive efforts were taken

Table 4. Summary of logistic regression examining the relationship among employment and demographic and health factors, SCI-related needs, and social role participation in respondents with spinal cord injury (SCI)

	Young/middle-aged adults		Older adults	
	OR	**95% CI**	**OR**	**95% CI**
Demographic factors				
Female [a]	0.75	(0.54-1.03)	0.66	(0.33-1.29)
Postsecondary education [b]	2.83***	(2.00-4.02)	1.81	(0.94-3.48)
Lives with another person[c]	1.35	(0.89-2.04)	0.95	(0.35-2.61)
Married or living as if married[d]	1.88***	(1.30-2.72)	1.11	(0.42-2.96)
Health factors				
Years post injury	0.98***	(0.96-0.99)	0.99	(0.97-1.00)
Tetraplegia[e]	1.04	(0.75-1.43)	1.26	(0.70-2.28)
Traumatic injury[f]	1.36	(0.92-2.01)	2.03*	(1.02-4.07)
PCS (0-100)	0.97**	(0.95-0.99)	1.01	(0.97-1.04)
MCS (0-100)	1.00	(0.99-1.02)	0.99	(0.95-1.02)
SCI-related needs				
Number of unmet needs	0.89***	(0.83-0.95)	0.97	(0.84-1.12)
Social role participation				
Number of social roles	1.14***	(1.09-1.20)	1.28***	(1.15-1.45)

Note: The reference category for the dependent variable is not working post-injury. The reference category for the independent variables: [a] = male; [b] = not having postsecondary education; [c] = lives alone; [d] = single; [e] = paraplegia; [f] = nontraumatic injury. OR = odds ratio; MCS = Short Form-12 Mental Component Score; PCS = Short Form-12 Physical Component Score.

*$P < .05$. **$P < .01$. ***$P < .001$.

to recruit a representative sample of Canadians with SCI, persons who have the most severe injuries or who live in rural communities may not have participated in the survey. As a result, the generalizability of the findings may be limited. A longitudinal study would build on the current cross-sectional design and allow researchers to better understand changes to employment over the working life course and determine causal relationships among demographic, health, unmet needs, and social role participation and labor force involvement. Also, to better understand work experiences, productivity losses experienced by people with SCI should be examined. Accordingly, research should access a greater range of work outcomes including absenteeism (eg, missed work days) and presenteeism (at-work productivity loss), which have been applied to other disabled populations.[43] Finally, a larger number of young adults (18 to 30 years of age) should be recruited to better understand the school-to-work transition, compare early job experiences to those in the middle and later stages, and develop important interventions that will encourage employment at the beginning phase of one's career and minimize long-term work disability. Several additional limitations are discussed in the first article in this issue.[32]

Overall, this study contributes to an important body of literature highlighting the challenges people with SCI face in finding and maintaining employment and several important life phase differences. In addition to a notable relationship between social role participation and employment in all study participants, findings call attention to the importance of reducing unmet SCI needs in the young/middle-aged life phases and underscore the requirement for developing strategies to delay premature retirement in older ages. Results emphasize the need for additional research along with the development of tailored policies and programs that minimize barriers to labor force participation of people with SCI across the working life course.

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