

## Original Article

# Domain-specific satisfaction in adults with pediatric-onset spinal cord injuries

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**Study design:** Interview using a structured questionnaire and standardized measures.

**Objectives:** To determine domain-specific satisfaction levels in adults with pediatric-onset spinal cord injuries (SCI), to determine factors associated with these levels of satisfaction, and to determine the relationship of domain-specific satisfaction to overall life satisfaction in this population.

**Setting:** US and Canada.

**Methods:** The participants were adults who sustained SCI at age 18 years or younger and were 24 years of age or older at the time of interview and did not have significant head injury. In addition to providing information about themselves, including education level, employment, marital status, and community participation, they were asked to rate their level of satisfaction in seven domains: transportation in the community, educational achievement, employment opportunities, income, social/recreational opportunities, dating opportunities, and sexual experience. They also completed the satisfaction with life scale (SWLS), the Craig handicap assessment and reporting technique, the functional independence measure, and the short-form-12 perceived health scale.

**Results:** A total of 216 individuals were interviewed. The mean age at injury was 14 years and the mean age at interview was 29 years. From most satisfied to least satisfied, the domains were ranked in the following order: satisfaction with transportation in the community, educational achievement, social and recreational opportunities, sexual experiences, dating opportunities, job opportunities, and income. Age at interview, gender, and perceived health were identified in regression analyses as predictors of some of the domain-specific satisfactions, but the primary predictive factors were in the area of participation. Neither severity of neurologic impairment nor level of functional independence were predictors for any of the domains. Satisfaction in each of the domains was significantly associated with SWLS and satisfaction with dating, job opportunities, education, and income were identified as predictive factors in a regression analysis.

**Conclusions:** Dating opportunities, job opportunities, and income are the three domains in which adults with pediatric-onset SCI are least satisfied and those domains have a significant impact on overall satisfaction.

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## Introduction

A subjective measure of life satisfaction is a key component of outcome assessment for individuals who sustain spinal cord injuries (SCI).<sup>1–3</sup> The instruments used to assess life satisfaction, however, are numerous

and comparing results from one type of measure to another is problematic.<sup>4</sup> One of the ways in which measures differ is that they may assess satisfaction globally or within specific domains. A global, overall measure of life satisfaction asks how the individual would rate their own quality of life as a whole. The satisfaction with life scale (SWLS) is one example of a

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measure of global, overall life satisfaction that have been used to assess individuals with SCI.<sup>5-9</sup> The strength of this approach is that individuals have the freedom to select whatever aspects of life seem most relevant to them and to make their own summation when reaching a judgment of the overall quality of their life. In contrast, domain-specific measures require that individuals rate their satisfaction with various aspects of life that are determined by the investigator. This approach identifies more specifically the participant's satisfaction with one aspect of life as compared to others. Fuhrer *et al.*,<sup>7</sup> for example, asked adults with SCI to rate their satisfaction in 12 domains and found that they were most satisfied with family relationships, spiritual life, and daily living tasks and least satisfied with money matters, sex life, and employment. Another measure of life satisfaction, the Life Satisfaction Questionnaire, asks respondents to rate their satisfaction with life as a whole and also in eight separate domains.<sup>10</sup> When this measure was used with adults who had SCI, highest satisfaction was reported for the three areas that reflected social relationships: contacts with friends and acquaintances, family life, and partnership relations. Lowest satisfaction existed with sexual life and vocational situation. In the middle were ratings of satisfaction of managing self-care, leisure situation, and financial situation.<sup>11</sup>

There are few studies that have assessed the adult quality of life of individuals with pediatric-onset SCI.<sup>12,13</sup> We previously reported on the overall life satisfaction of adults with pediatric-onset SCI.<sup>14</sup> The measure used to assess overall life satisfaction in that study was the SWLS, which is used by the SCI Model Systems and was selected for our study to enable a comparison of adult-onset SCI with the pediatric-onset population.<sup>14</sup> However, the SWLS does not contain any domain-specific components. To supplement the SWLS, we added seven domain-specific rating scales in the area of participation. The domains included: satisfaction with community transportation, educational achievement, job opportunities, personal income, recreation and social opportunities, dating opportunities, and sexual experience. The purpose was to provide insight about the relative levels of satisfaction in each domain, thereby highlighting the domains of least satisfaction that future rehabilitation strategies might target.

The goals of the present study are to determine the relative level of satisfaction with each domain, to determine demographic, impairment, function, and participation factors that are associated with satisfaction in each domain, and to determine how the domains relate to each other and to the overall level of satisfaction of the individual.

## Methods

### *Participants*

A convenience sample was used for this study. Eligible subjects were individuals who had sustained an SCI at

age 18 years or younger, were 24 years of age or older at follow-up, did not have a significant brain injury, and who were living in the US or Canada. All individuals who had received care at the SCI Programs of Shriners Hospitals for Children in Chicago or Philadelphia were potential participants. These hospitals serve patients from the central and eastern sections of the US, both rural and urban areas. Care is free of charge, and there are no financial or insurance restrictions. There are no requirements for acceptance into the Shriners Hospitals for Children SCI Programs and patients are permanently discharged from the program when they reach the age of 21 years.

Of the 367 individuals who met the criteria for this study, 76 (21%) were not located and 14 (4%) had died. Of the remaining 277 who were available, 61 (22%) declined to participate and 216 (78%) were interviewed.

### *Procedures*

All eligible patients were identified and then searched for by using the following methods: review of contact information from Shriners Hospitals for Children medical charts, a computer search of Web sites such as The Ultimates and the Social Security Death Index that access directories, and a search by a professional search service. In accord with the policies of the Shriners Hospitals for Children's Institutional Review Board, each patient contacted was informed of the purposes, procedures, confidentiality, and volunteer nature of participation in the study. After obtaining written informed consent, the participants were enrolled in the study and interviewed by telephone. In addition, medical chart reviews and the Shriners Hospitals for Children SCI database were used to obtain injury-related information.

### *Instruments*

A structured questionnaire designed for this study elicited specific information related to demographics and outcomes such as employment, living situation, and marital status. In addition, each participant was asked to rate, on a five-point scale, their level of satisfaction with each of the following domains: transportation in the community, educational achievements, job opportunities, income, recreation and social opportunities, dating opportunities, and sexual experience. A rating of 5 indicated highest satisfaction and a rating of 1 indicated least satisfaction (Appendix). Subjective, global life satisfaction was measured with the SWLS.<sup>15</sup> This measure consists of five statements that an individual rates on a seven-point scale: 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = neither agree nor disagree, 5 = slightly agree, 6 = agree, 7 = strongly agree. Total possible scores range from 5 to 35, with higher scores indicating greater satisfaction. This measure has been widely used with adult SCI patients.<sup>16-18</sup> In addition, standardized measures were used to assess each level of disablement. Impairment was

measured using neurologic level and American Spinal Injury Association (ASIA) Motor Score.<sup>19</sup> Functional limitations were assessed with the telephone version of the functional independence measure (FIM), an 18-item tool that assesses areas of self-care, mobility, sphincter control, communication, and social cognition. It uses a seven-point rating scale to identify the level of independence with which an individual performs 18 activities of daily living.<sup>20–23</sup> Participation was measured by the Craig handicap assessment and reporting technique (CHART).<sup>24,25</sup> The CHART produces a total score as well as scores for six separate subscales: physical independence, cognitive independence, mobility, occupation, social integration, and economic self-sufficiency. Health-related quality of life was assessed with the short-form-12 (SF-12) that includes 12 questions from which mental and physical component scores are generated.<sup>26</sup> The reliability and validity of each of the standardized measures has been established as indicated in the cited references.

### Analyses

Descriptive analyses, *t*-tests, Pearson correlations, factor analysis, and stepwise multiple linear regression analyses were conducted using SPSS 10.0 software. An  $\alpha$  level of 0.05 was used to determine statistical significance. For correlations of the domain-specific satisfaction scores, a Bonferroni correction (0.05/21,  $P = 0.0024$ ) was used to account for the increase in type I error when performing multiple comparisons. To determine factors associated with each domain of satisfaction, multiple regression analyses were conducted with each domain as the dependent variable. Independent variables were selected to include demographics, each level of disablement, and health-related quality of life: demographics (age at injury, age at interview, sex, and race), impairment (tetraplegia/paraplegia, ASIA motor score), function (FIM total score), participation (CHART subscales of physical independence, mobility, cognition, occupation, and social integration; employment, education, marital status, frequency of recreation activities, independent driving, independent living, income), and perceived health (SF-12 mental component and SF-12 physical component).

### Results

A description and comparison of those individuals interviewed and those not interviewed is shown in Table 1. There were a few differences in the demographic distributions between those interviewed and those not interviewed. The group interviewed included a higher percentage of Caucasians and persons with tetraplegia. For the 216 individuals who were interviewed, age at injury ranged from birth to 18 years, with 18% being children (12 years of age or younger), 38% being young adolescents (13–15 years old), and 44% being older adolescents (16 years and older). Age at follow-up

ranged from 24 to 37 years, and duration of injury ranged from 6 to 30 years.

Table 2 shows the mean satisfaction ratings for each of the seven domains for the total sample. The highest satisfaction ratings occur for the domains of transportation, education, and social/recreation and lowest ratings for income, job opportunities, and dating opportunities. Sexual satisfaction ranks in the middle. For those with tetraplegia, compared to paraplegia, there are no significant differences in satisfaction ratings for any of the domains and the rankings for both groups is the same, identical to that of the total sample (Table 2). In addition, there were no significant differences between males and females for any of the domain ratings and the rank order of the males was the same as the total group. The rank order of the females was almost identical to the total group with the exception that satisfaction with job opportunities was rated higher than satisfaction with dating opportunities (Table 2).

The second goal was to determine what demographic, impairment, function, participation, and health-related quality of life factors were associated with each satisfaction domain. Table 3 shows a summary of the multiple regression analyses for each satisfaction domain. The interpretation of these regression analyses is limited by the relatively low adjusted  $R^2$  values, especially for satisfaction with dating opportunities. For five of the satisfaction domains, there were corresponding objective measures: transportation, educational achievement, job opportunities, income, and social/recreational opportunities. Not surprisingly, in each of these five domains, satisfaction was positively associated with the objective measure. For example, satisfaction with educational achievement was associated with more years of education. There were no direct objective outcomes corresponding to satisfaction with dating or sexual experiences. Dating was associated with independent living and younger age at interview. Satisfaction with sexual experiences was associated with being married, living independently, perceived physical health and more social and recreational opportunities. It was also related to gender, women being more satisfied than men.

In summary, the only demographic factors associated in these models with any of the satisfaction domains were age at interview and gender. Women were more satisfied with both income and sexual experiences, and younger age at interview was associated with greater satisfaction with dating opportunities. Age at injury and race were not predictive factors for any of the domains. Additionally, severity of neurological impairment and severity of functional impairment were not included in the predictive models for any of the satisfaction domains. Perceived mental or physical health were predictive factors for three domains (education, social/recreational opportunities, and sexual experiences). A majority of the predictive factors were in the realm of participation. Independent living was associated with three domains (satisfaction with job opportunities,

**Table 1** Comparison of adults with childhood or adolescent-onset SCI who were interviewed or not interviewed

	<i>Interviewed</i>	<i>Not interviewed</i>	<i>Significance</i>
Number of subjects ( <i>n</i> = 367)	216	151	
Sex			
Male ( <i>n</i> = 263)	150 (57%)	113 (43%)	$\chi^2 = 1.271$ ( $P = 0.260$ ) <sup>a</sup>
Female ( <i>n</i> = 104)	66 (63%)	38 (37%)	
Race/ethnicity	<i>n</i> = 193	<i>n</i> = 135	
Caucasian ( <i>n</i> = 279)	173 (62%)	106 (38%)	$\chi^2 = 7.728$ ( $P = 0.005$ ) <sup>a</sup>
Non-Caucasian ( <i>n</i> = 49)	20 (41%)	29 (59%)	
Age at injury (years)		<i>n</i> = 149	
Mean (SD)	14.1 (4.0)	14.2 (3.7)	$P = 0.651$ <sup>b</sup>
Current age (years)		<i>n</i> = 149	
Mean (SD)	28.6 (3.4)	29.0 (3.8)	$P = 0.292$ <sup>b</sup>
Duration		<i>n</i> = 149	
Mean (SD)	14.2 (4.6)	14.2 (4.6)	$P = 0.945$ <sup>b</sup>
Level of injury		<i>n</i> = 149	
Tetraplegia ( <i>n</i> = 191)	123 (64%)	68 (36%)	$\chi^2 = 4.519$ ( $P = 0.034$ ) <sup>a</sup>
Paraplegia ( <i>n</i> = 174)	93 (53%)	81 (47%)	
ASIA Motor score	<i>n</i> = 214	<i>n</i> = 149	
Mean (SD)	37.9 (22.6)	41.4 (23.5)	$P = 0.162$ <sup>b</sup>
ASIA Impairment Scale	<i>n</i> = 215	<i>n</i> = 149	
A ( <i>n</i> = 240)	137 (57%)	103 (43%)	$\chi^2 = 1.145$ ( $P = 0.285$ ) <sup>a</sup>
B,C,D ( <i>n</i> = 124)	78 (63%)	46 (37%)	
Injury severity	<i>n</i> = 215	<i>n</i> = 149	
C1-C4 ABC ( <i>n</i> = 49)	41 (84%)	8 (16%)	$\chi^2 = 14.208$ ( $P = 0.003$ ) <sup>a</sup>
C5-C8 ABC ( <i>n</i> = 119)	66 (55%)	53 (45%)	
T1-S5 ABC ( <i>n</i> = 148)	82 (55%)	66 (45%)	
Tetra/para D ( <i>n</i> = 48)	26 (54%)	22 (46%)	
Etiology		<i>n</i> = 148	
Vehicular ( <i>n</i> = 151)	92 (61%)	59 (39%)	$\chi^2 = 8.743$ ( $P = 0.120$ ) <sup>a</sup>
Sports ( <i>n</i> = 109)	72 (66%)	37 (34%)	
Violence ( <i>n</i> = 42)	17 (41%)	25 (59%)	
Falls ( <i>n</i> = 24)	14 (58%)	10 (42%)	
Medical/surgical ( <i>n</i> = 32)	18 (56%)	14 (44%)	
Other ( <i>n</i> = 6)	3 (50%)	3 (50%)	

The *n* values in parentheses are total number of cases that fell within the cell. Percentages by row within parentheses

<sup>a</sup> $\chi^2$  test. <sup>b</sup>*t*-test

**Table 2** Mean domain-specific satisfaction scores

<i>Domain</i>	<i>Total sample</i>	<i>Males</i>	<i>Females</i>	<i>Tetraplegia</i>	<i>Paraplegia</i>
Transportation	4.23 (1.14) <sup>a</sup>	4.25 (1.15)	4.17 (1.11)	4.14 (1.17)	4.34 (1.09)
Education	3.94 (1.15)	3.90 (1.21)	4.03 (1.03)	3.96 (2.00)	3.92 (1.10)
Social/recreation	3.81 (1.01)	3.80 (1.00)	3.83 (1.02)	3.80 (0.99)	3.82 (1.03)
Sexual	3.42 (1.19)	3.31 (1.15)	3.65 (1.26)	3.42 (1.10)	3.41 (1.30)
Dating opportunities	3.12 (1.35)	3.12 (1.36)	3.11 (1.31)	3.06 (1.34)	3.20 (1.35)
Job opportunities	3.11 (1.41)	3.06 (1.37)	3.24 (1.49)	3.05 (1.38)	3.19 (1.44)
Income	2.70 (1.31)	2.59 (1.28)	2.95 (1.35)	2.61 (1.31)	2.82 (1.03)

<sup>a</sup>SD within parentheses

**Table 3** Domain-specific satisfactions: summary of multiple regression analyses

<i>Satisfaction domain</i>	<i>Predictors</i>	<i>Significance</i>	<i>Adjusted R<sup>2</sup></i>
Transportation	CHART mobility	$P < 0.001$	0.238
	Drives independently	$P < 0.001$	0.287
Educational achievement	Years of education	$P < 0.001$	0.171
	SF12 mental component	$P < 0.001$	0.261
	SF12 physical component	$P = 0.007$	0.292
Job opportunities	Income	$P = 0.015$	0.146
	Employment	$P = 0.009$	0.185
	Independent living	$P = 0.034$	0.205
Income	Income	$P < 0.001$	0.172
	Gender	$P = 0.019$	0.197
Social/recreational opportunities	CHART mobility	$P < 0.001$	0.105
	SF12 mental component	$P < 0.001$	0.171
	Frequency of recreational activities	$P = 0.022$	0.194
Dating opportunities	Living independently	$P = 0.002$	0.041
	Age at interview	$P = 0.003$	0.091
Sexual experience	Marriage	$P = 0.003$	0.108
	SF12 physical component	$P = 0.002$	0.184
	Independent living	$P = 0.011$	0.206
	Frequency of recreational activities	$P = 0.002$	0.238
	Gender	$P = 0.007$	0.273

**Table 4** Correlations among domain-specific satisfaction scores

	<i>Transportation</i>	<i>Education</i>	<i>Social/recreation</i>	<i>Sexual</i>	<i>Dating</i>	<i>Job opportunities</i>	<i>Income</i>
Transportation		0.128 <sup>a</sup>	0.261	0.146	0.233	0.183	0.285
Education		$P = 0.065$	$P < 0.001^b$	$P = 0.048$	$P = 0.001^b$	$P = 0.010$	$P < 0.001^b$
Social/recreation			0.189	$P = 0.288$	$P = 0.947$	$P < 0.001$	$P < 0.001^b$
Sexual			$P = 0.006$	0.295	0.357	0.313	0.204
Dating				$P < 0.001^b$	$P < 0.001^b$	$P < 0.001^b$	$P = 0.003$
Job opportunities					0.338	0.287	0.137 <sup>b</sup>
Income					$P < 0.001^b$	$P < 0.001^b$	$P = 0.065$
						0.191	0.187
						$P = 0.007$	$P = 0.006$
							0.501
							$P < 0.001^b$

<sup>a</sup>Correlation coefficients; <sup>b</sup>Meet Bonferroni criteria by  $P < 0.0024$

dating, and sexual experiences). Community mobility, frequency of social and recreational activities, and income were each associated with satisfaction in two domains.

The third goal of the study was to determine associations among the domains of satisfaction and their relationship to a global measure of subjective life satisfaction. The intercorrelations of each of the domain is shown in Table 4. Of the possible 21 correlations, significant associations occur in 17, and 11 meet the Bonferroni criteria of  $P < 0.0024$ . All respondents were entered into a factor analysis to deduce whether a pattern of satisfaction with the seven domains existed. The analysis suggests that the seven domains of satisfaction segregated into two groups. The first group

includes satisfaction with transportation, recreation and social opportunities, dating, and sexual experience. The second component includes education, employment, and income (Table 5). Together these factors explain 53% of the variance.

Global life satisfaction, as measured by SWLS, was significantly associated with each of the domain satisfaction ratings at a  $P < 0.001$  level (Pearson correlations). A step-wise multiple linear regression analysis that entered all seven of the domains resulted in a model that included satisfaction with dating ( $P < 0.001$ ), job opportunities ( $P = 0.001$ ), education ( $P = 0.001$ ), and income ( $P = 0.003$ ) (Table 6). The adjusted  $R^2$  value of 0.47 indicates that this model is reasonably robust, accounting for 47% of the variance.

## Discussion

Satisfaction with the domains of community transportation, educational achievement, and social/recreational opportunities were consistently rated highest of the seven domains by the whole group, irrespective of gender or level of injury. Similarly, satisfaction with dating opportunities, job opportunities, and income were rated lowest by all groups. Direct comparison with previous studies is not possible because there are so many variations in the domains that are assessed, the rating scales that are used, and the methods of analyses.<sup>4</sup> The present study used satisfaction with educational achievement as one domain because the study participants were children or adolescents when injured and education is an important issue for these age groups. Satisfaction in the domain of education is not included in other studies where the study participants were primarily adults when injured. However, the other domains used in this study are fairly typical and the findings show striking similarities to other studies in which the participants were primarily injured in adulthood. Dijkers, reviewing studies of quality of life after SCI, states: ‘Family relationships, living arrangements, social life and passive recreation tend to be domains with which satisfaction is high, while low satisfaction ratings are common for finances, sexual life, and employment.’<sup>2</sup> Crewe<sup>27</sup> asked adults with SCI to rate satisfaction in five areas: employment, finances,

social, sexual, and health. Health and social domains were the areas with the largest percent of participants who were satisfied and finances, sexual and employment domains, in that order, showed increasingly fewer satisfied participants. Similar findings are reported by others, using slightly different sets of domains.<sup>11,28</sup>

The fact that dating opportunities, job opportunities, and income were so consistently given the lowest satisfaction ratings by the adults in the present study provides compelling feedback about long-term outcomes. These ratings are consistent with the objective information which shows that income, employment, and marriage rates are lower in this population than in the general US population of the same age.<sup>29–31</sup> It is also noteworthy that the same three domains, dating opportunities, job opportunities, and income, are three of the four factors that show the strongest association with SWLS in multiple regression analysis. Satisfaction in these three areas clearly impacts the overall subjective quality of life.

With the exclusion of gender and age at interview, all other factors associated with satisfactions in the seven domains in regression analyses could be considered ‘participation’ outcomes or perceived health outcomes. Neither neurologic level nor functional independence were predictive factors for satisfaction in any domains. These results can be compared to our previous findings regarding overall satisfaction (SWLS) of these patients. In that study, as well, regression analysis did not identify either neurologic level or functional independence as predictive factors. However, the following were identified as predictive factors for overall life satisfaction: age at injury, community mobility, marital status, use of street drugs, perceived mental health and medical complications.<sup>14</sup> Similar findings have also been reported in the literature. Dijkers’ meta-analysis<sup>2</sup> and Fuhrer’s review<sup>1</sup> both find evidence that life satisfaction is most strongly associated with participation, somewhat related to function, and inconsistently related to severity of impairment in adults with primarily adult-onset SCI. This may be encouraging news, particularly for those patients with more severe impairments and their parents. Although they have little control over the severity of their impairment, they may be able to exert some control over the level of their participation and their health status and hence may have the capacity to impact on their level of satisfaction. Nevertheless, the amount of variance accounted for by the studied factors

**Table 5** Rotated (varimax) loadings for factor analysis of seven domain-specific satisfaction ratings

	Factors	
	I	II
Satisfaction with transportation around community	0.5	0.2
Satisfaction with educational achievements after SCI	−0.02	0.7
Satisfaction with job opportunities	0.3	0.8
Satisfaction with income	0.2	0.8
Satisfaction with social and recreational opportunities	0.7	0.3
Satisfaction with dating opportunities	0.8	−0.08
Sexual satisfaction since injury	0.7	0.08
Explained variance (Σ 53%)	27.0%	26.5%

**Table 6** Multiple linear regression model: domain-specific satisfactions predictive of SWLS

	$\beta$	Coefficient		Significance	95% confidence intervals	
		Standard error			Lower	Upper
Dating opportunities	2.21	0.298		<0.001	1.62	2.80
Job opportunities	1.12	0.331		0.001	0.464	1.77
Education	1.26	0.363		0.001	0.546	1.98
Income	1.07	0.350		0.003	0.376	1.76

is relatively small, indicating that other factors also contribute to domain-specific satisfaction. Medical complications, for example, had a significant association with overall life satisfaction in this population.<sup>32</sup> Satisfaction with dating, for which the factors in the regression model accounted for only 10% of the variance, is likely to be associated with societal and personal factors that were not included in this study.<sup>33</sup> Further research is needed to explore the role of psychological, societal, and environmental factors on outcomes, including overall life satisfaction and satisfaction in various domains.<sup>34</sup>

There is a significant correlation between each of the domain-specific satisfaction ratings and the SWLS. One explanation of this finding is that individuals inherently consider similar domains when summing up their own global subjective life satisfaction. The impact that each domain has on a person's overall life satisfaction, however, must be an individual decision.<sup>10</sup> Additionally, it cannot be ruled out that individuals may fall into personality categories that are either generally positive and satisfied or negative and dissatisfied. It is certainly true that many of the domains are associated in such a way that being satisfied in one area is apt to result in satisfaction in another and thus leads to an overall feeling of life satisfaction. The segregation of the domains into two groups, with satisfaction with dating, sexual experiences, community transportation, and recreation/social opportunities in one group and satisfaction with education, job opportunities, and income in a second group makes intuitive sense. The first group appears to reflect more interpersonal interactions and the second may reflect more vocational aspects of life.

Despite the strong correlation of domain-specific satisfaction ratings with overall life satisfaction, the domain satisfaction ratings add to our understanding by highlighting the specific areas that are most problematic from the perspective of the individual with SCI. Since satisfaction with income, employment opportunities, and dating opportunities are the areas of least satisfaction, those aspects of life can be targeted for greater emphasis during rehabilitation. This is more complicated in children and adolescents with SCI than it is for individuals with adult-onset SCI. Children and adolescents must progress through several developmental stages before they reach adulthood.

Therefore, rehabilitation must focus on preparing these individuals to adequately meet developmental milestones that are essential for successful transition into adulthood. For example, preparation for adult employment includes many developmental stages, such as learning to do chores and having part-time jobs. Such activities need to be encouraged for children and adolescents with SCI as part of their rehabilitation program.

#### Limitations

The subjects for this study were all from a single rehabilitation system. Therefore, because of the their unique demographic and injury-related factors, results

cannot be generalized to the overall population of adults with pediatric-onset SCI. In addition, the subjects in the study had a disproportionately low number injured at younger ages or interviewed as older adults. Since our rehabilitation programs began approximately 20 years ago, the oldest patients are only at age 37 years. Many of our patients who were injured as younger children have not yet reached adulthood. From the potential subjects, the sample was biased toward those with more severe neurological impairment and those who were white.

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### Appendix: Domain-specific satisfaction rating scales

1. On a scale of 1 (not satisfied) to 5 (very satisfied), how satisfied are you with your transportation around the community?
2. On a scale of 1 (not satisfied) to 5 (very satisfied), how satisfied have you been with your educational achievements following your SCI?
3. On a scale of 1 (not satisfied) to 5 (very satisfied), how satisfied have you been with your job opportunities?
4. On a scale of 1 (not satisfied) to 5 (very satisfied), what is your level of satisfaction with your income?
5. On a scale of 1 (not satisfied) to 5 (very satisfied), what is your level of your satisfaction with your social and recreational opportunities?
6. On a scale of 1 (not satisfied) to 5 (very satisfied), how satisfied are/were you with your dating opportunities?
7. On a scale of 1 (not satisfied) to 5 (very satisfied), what is your level of sexual satisfaction since your injury?