

Author, Year Country Study Design Sample Size	Population Intervention Outcome Measure	Results
(Ma et al., 2016) Canada Observational N=174	<p>Population: <i>Pediatric-sustained SCI (<19 yr; n=87):</i> Age: 38.6±12.3 yr; Gender: males=61, females=26; Time since injury: 24.1±14.0 yr; Level of injury: C1-4=6, C5-8=35, T1-5=12, T6-L5=34; Severity of injury: complete=41, incomplete=46. <i>Adult-sustained SCI (19+ yr; n=87):</i> Age: 39.5±10.9 yr; Gender: males=62, females=25; Time since injury: 12.8±10.0 yr; Level of injury: C1-4=8, C5-8=33, T1-5=11, T6-L5=35. Severity of injury: complete=40, incomplete=45.</p> <p>Intervention: None. Secondary analysis of data from the <i>Study of Health and Activity in People with SCI (SHAPE-SCI)</i> (Martin Ginis et al., 2008).</p> <p>Outcome Measures: Functional Independence Measure (FIM) motor subscale, Short Form 36 (SF-36), number of physician visits, Patient Health Questionnaire 9-item (PHQ-9), Physical Activity Recall Assessment for People with Spinal Cord Injury (PARA-SCI), Craig Handicap Assessment and Reporting Technique (CHART), Satisfaction with Life Scale (SWLS)</p>	<ol style="list-style-type: none"> 1. Compared to adult-sustained SCI, participants with paediatric-sustained SCI reported significantly greater functional independence (FIM motor subscore; p=0.03), less pain (SF-36 pain subscore; p=0.02), and fewer visits to the doctor in the past year (p=0.04). 2. There were no significant differences between adult- or pediatric-sustained SCI groups with respect to perceived health status (SF-36 general health subscore) or depressive symptoms (PHQ-9). 3. Compared to adult-sustained SCI, those with pediatric-sustained SCI reported more minutes of moderate-heavy leisure time physical activity (PARA-SCI; p=0.05), and scored higher on measures of social and occupational participation (CHART; p=0.04 and p=0.03, respectively). 4. There were no significant differences between adult- or pediatric-sustained SCI groups with respect to life satisfaction.
(Riordan et al., 2015) USA Observational N=340	<p>Population: Age: 13.2±3.9 yr; Age at injury: 8.2±5.8 yr; Gender: males=194, females=146; <i>Three Level/Severity Injury Groups:</i> tetraplegia AIS ABC=96, paraplegia AIS ABC=191, AIS D=53.</p> <p>Intervention: None. Survey.</p> <p>Outcome Measures: Children's Assessment of Participation and Enjoyment (CAPE), Pediatric Quality of Life Inventory (PedsQL), Revised Children's Manifest Anxiety Scale (RCMAS), Children's Depression Inventory (CDI).</p>	<ol style="list-style-type: none"> 1. Subjects with paraplegia ABC and AIS D injuries participated (CAPE) in more activities than those with tetraplegia ABC (p=0.002 and p=0.018, respectively). 2. There were no significant differences between the participation frequency (CAPE) of subjects with paraplegia ABC and those with AIS D injuries. 3. Subjects with paraplegia ABC reported higher social QOL (PedsQL) than those with tetraplegia ABC (p=0.001) and AIS D injuries (p=0.002). <p>1. There were no differences between subjects in the three neurological impairment categories when examining scores exceeding the clinical cut-off for anxiety or depression (RCMAS and CDI).</p>
(Russell et al., 2015) USA Observational N=199	<p>Population: Age at interview: 16.0±1.7 yr; Age at injury: 11.0±5.5 yr; Gender: males=112, females=87; Injury etiology: non-traumatic=41, traumatic=156; Level of injury: tetraplegia=76, paraplegia=123; Severity of injury: AIS A=109, AIS B, C, D=79.</p> <p>Intervention: None. Survey.</p> <p>Outcome Measures: Children's Assessment of Participation and Enjoyment (CAPE), Pediatric</p>	<ol style="list-style-type: none"> 1. The ineffective copers demonstrated the greatest level of distress, followed by the active copers, the avoidant copers, and the cognitive copers. 2. The cognitive copers had significantly lower mental health symptoms (p<0.001) and significantly higher self-report of emotional QOL (p<0.001) than the ineffective, active, and avoidant copers. 3. The ineffective copers had significantly lower school-related QOL than both the avoidant and cognitive copers (p=0.006).

	<p>Quality of Life Inventory (PedsQL), Revised Children's Manifest Anxiety Scale (RCMAS), Children's Depression Inventory (CDI), Kidcope.</p>	<ol style="list-style-type: none"> 4. The active coping group was not significantly different from avoidant or ineffective copers on any dimension of QOL or mental health. 5. The active copers participated in activities with significantly greater frequency ($p < 0.001$) than the ineffective and avoidant groups. 6. The avoidant group reported the lowest level of activity enjoyment, with significantly lower activity enjoyment ($p = 0.010$) compared with the active copers.
<p>(Kelly & Vogel, 2013) USA Observational N=410</p>	<p>Population: Age at interview: 12.0 ± 4.9 yr; Age at injury: 7.3 ± 6.0 yr; Gender: 231 males, females=179; Severity of injury: AIS A (complete)=226; Level of injury: paraplegia=269. Intervention: None. Survey. Outcome Measures: Assessment of Preschool Children's Participation (APCP), Children's Assessment of Participation and Enjoyment (CAPE), Pediatric Quality of Life Inventory (PedsQOL), Behaviour Assessment System for Children Second Edition (BASC-2), Revised Children's Manifest Anxiety Scale (RCMAS), Children's Depression Inventory (CDI).</p>	<ol style="list-style-type: none"> 1. Of those with BASC-2 data, 3 (6.5%) children had a clinically significant anxiety score and 4 (8.0%) children had a clinically significant depression score. 2. School-aged children ages 6-12 were most likely to engage in watching TV or a rented movie, playing computer or video games, and playing board or card games and were least likely to do gymnastics or do a paid job. 3. Overall, school-aged children rated their emotional QOL as highest and school QOL as lowest. 4. Of the school-aged children that completed the RCMAS, 9 (7.4%) fell above the clinical cut-off for anxiety and of those that completed the CDI, 5 (4.2%) fell above the clinical cut-off for depression. 5. Younger adolescents ages 13-15 were most likely to engage in watching TV or a rented movie, listening to music, and playing computer or video games and were least likely to be learning to dance, doing gymnastics, and doing martial arts. 6. Overall, younger adolescents rated their social QOL as highest and school QOL as lowest. 7. Of the younger adolescents that completed the RCMAS and CDI, 6 (7.3%) fell above the clinical cut-off for anxiety and 2 (2.4%) above the clinical cut-off for depression. 8. Older adolescents ages 16-18 were most likely to engage in watching TV or a rented movie, listening to music, and talking on the phone and were least likely to be learning to dance, doing gymnastics, and doing martial arts. 9. Overall, older adolescents rated their social QOL as highest and school QOL as lowest. 10. Of the older adolescents that completed the RCMAS, 23 (17.2%) fell above the clinical cut-off for anxiety and of those that completed the CDI, 7 (9%) fell above the clinical cut-off for depression.
<p>(Kelly, Klaas, et al., 2012) USA Observational N=340</p>	<p>Population: Group: Children (6-12 yr) =133, Adolescents (13-18 yr) =207. Age: 13.3 ± 3.8 yr. Time since injury: 5.1 ± 4.3 yr, Level of injury: paraplegia=224; Severity of injury: complete=187. Intervention: None. Survey. Outcome Measures: Children's Assessment of Participation and Enjoyment (CAPE; i.e., participation, diversity, frequency, intensity, context), Pediatric Quality of Life Inventory – Psychosocial Health</p>	<ol style="list-style-type: none"> 1. For children (6-12 yr), Regression analysis showed that <i>where</i> children participate (i.e., further from home) positively and significantly predicted QOL subscales after controlling for age, sex, injury level, and injury duration. 2. For adolescents (13-18 yr), regression analysis showed that subject characteristics "<i>who</i>" (i.e., being male, having paraplegia, and participating with a more diverse group) positively, and significantly predicted QoL after controlling for child age, sex, injury level, and injury duration.

	Scale (PHS) (only emotional, social, school subscales).	
(Kelly, Mulcahey, et al., 2012) USA Observational N=420	<p>Population: Age: 1-18 yr Intervention: None. Survey. Outcome Measures: Computerized Adaptive Testing (CAT), Children's Assessment of Participation and Enjoyment (CAPE), Revised Children's Manifest Anxiety Scale (RCMAS), Children's Depression Inventory (CDI), Pediatric Quality of Life Inventory (PedsQL), Kidcope.</p>	<ol style="list-style-type: none"> 1. Of those with SCI, 9% scored above the cut-off level that would indicate significant clinical concern, compared with 16% of the normative group. When the group was divided into children (7-12 yr old) and adolescents (13-17 yr old), both groups scored within the average range of anxiety. 2. In the SCI sample, 5% scored above the cut-off that would indicate clinically significant depression compared with 7% in the normative group. 3. There were no significant associations of anxiety or depression with any of the demographic or injury-related factors, except that more anxiety was associated with being female and having a shorter duration of injury. 4. Depression, but not anxiety, was associated with decreased community participation. 5. Both increased depression and increased anxiety were associated with decreased QOL. 6. Child mental health significantly predicted self-report QOL, whereas child and caregiver mental health significantly predicted proxy-report QOL. Caregiver mental health was a stronger predictor of how caregivers rated the QOL of their children than child mental health. 7. With regard to psychological outcomes, use of most coping strategies correlated with increased anxiety, increased depression, and decreased QOL. Youth who used cognitive restructuring experienced decreased depression. 8. With regard to frequency of participation, use of self-criticism correlated with less participation, while use of social support was related to increased participation. 9. Youth who reported feeling effective when coping also reported more positive outcomes and more enjoyment while participating.
(Lindwall et al., 2012) USA Observational N=294	<p>Population: Age at interview: 13.7±3.5 (7-18) yr; Age at injury: 8.4±5.8 (0-17) yr; Time since injury: 5.4±4.5 (1-18) yr; Gender: males=162, females=132; Level of injury: paraplegia=67%, tetraplegia=33%. Intervention: None. Survey. Outcome Measures: Kidcope, Children's Assessment of Participation and Enjoyment (CAPE).</p>	<ol style="list-style-type: none"> 1. Higher levels of social support and lower levels of self-criticism were associated with higher participation in informal activities ($p<0.01$ and $p<0.05$, respectively). 2. Lower levels of social withdrawal were associated with participation in informal activities with a greater diversity of individuals ($p<0.05$). 3. Lower levels of blaming others were associated with higher enjoyment of informal activities ($p<0.05$). 4. Higher levels of cognitive restructuring were associated with participation in formal activities with a greater diversity of individuals and in settings further from home ($p<0.05$). 5. Frequency of participation and enjoyment in formal activities were not associated with any of the coping variables.
(Klaas et al., 2010) USA Observational N=194	<p>Population: <i>Children:</i> Age at interview: 13.2±3.7 yr; Age at injury: 7.2±5.7; Gender: males=106, females=88; Level of</p>	<ol style="list-style-type: none"> 1. Subjects participated in a mean of 23.83 (43%) (range 9-44) of the 55 activities included in CAPE, of which most activities were sedentary and informal.

	<p>injury: tetraplegia=57, paraplegia=137. <i>Caregivers:</i> mothers=150, fathers=21, grandmother=10, other=13. Intervention: None. Survey. Outcome Measures: Children's Assessment of Participation and Enjoyment (CAPE).</p>	<ol style="list-style-type: none"> Subjects participated more often in informal activities ($p<0.001$) and reported higher levels of enjoyment with these ($p=0.046$). When participating in formal activities young people (6-12 yr) were more socially engaged ($p<0.001$) than older subjects (13-18 yr); formal activities were more community-based than activities in the informal domain ($p<0.001$). Females participated more often in and enjoyed informal activities more than males did ($p<0.05$). Young people with paraplegia participated more in informal activities ($p=0.002$). Young people with parents with college experience participated more in formal activities ($p=0.009$) and reported greater enjoyment in formal activities ($p=0.004$). There was also a significant interaction of caregiver education by injury level ($p=0.034$).
<p>(Gorzowski et al., 2010) USA Observational N=97</p>	<p>Population: <i>Pediatric-onset SCI:</i> Age at interview: 12.5 ± 3.2 yr; Age at injury: 6.8 ± 5.3; males=0, females=97; Level of injury: paraplegia=79, tetraplegia=18; Severity of injury: complete=50, incomplete=47. Intervention: None. Survey. Outcome Measures: Children's Assessment of Participation and Enjoyment (CAPE), Children's Depression Inventory (CDI), Pediatric Quality of Life Inventory (PedsQL).</p>	<ol style="list-style-type: none"> On average, subjects participated in 77% of the assessed social activities and 59% of job-related activities; social activities were completed more frequently, further from home, and with a broader group of people than job-related activities. The relationship between social participation context (CAPE social diversity, intensity, with whom, where) and QOL (PedsQL) was mediated by depression (CDI) ($p<0.05$); a greater social participation context was associated with decreased depression, which was then associated with greater QOL. The relationship between job participation (CAPE diversity and intensity) frequency and QOL (PedsQL) was mediated by depression (CDI) ($p<0.05$); a greater job participation frequency was associated with decreased depression, which was then associated with greater quality of life.
<p>(Anderson et al., 2009) USA Observational N=118</p>	<p>Population: Age at interview: 12.3 ± 3.0 yr; Gender: males=61, females=57; Time since injury: 6.4 ± 4.3 (0-16) yr; Level of injury: tetraplegia=89, paraplegia=29; Severity of injury: AIS A=57, AIS B=13, AIS C=22, AIS D=17. Intervention: None. Survey. Outcome Measures: Functional Independence Measure (FIM), Children's Depression Inventory (CDI), Revised Children's Manifest Anxiety Scale (RCMAS), Pediatric Quality of Life Inventory (PedsQL), Children's Assessment of Participation and Enjoyment (CAPE).</p>	<ol style="list-style-type: none"> 13% of the young people with SCI had scores above the clinical cut-off for anxiety, compared with 16% of the RCMAS normative group. 6% of the patients fell above the clinical cut-off range for depression, which is very similar to the 7% above cut-off in the normative group. Anxiety and depression were each only associated with community participation ($p=0.005$ and $p=0.030$, respectively), in that the more anxious or depressed children were more apt to do activities closer to their homes rather than at someone else's house or in the community. Lower total QOL ratings for all subscales were associated with both anxiety and depression ($p<0.001$). The total CDI and RCMAS scores were significantly correlated with one another ($r=0.742$, $p<0.001$).
<p>(Johnson et al., 2004) USA Observational N=66</p>	<p>Population: Age: 16 yr; Gender: males=35, females=31; Age at Injury: 10 yr; Level of Injury: C1-6=19, C7-T6=16, T7-S4=31. Ambulation: Ambulatory=1,</p>	<ol style="list-style-type: none"> In the mild intensity category of activities, for all levels of injury, the 3 most frequent activities were: listening to music (mean 2.6 h/d); computer use (mean 2.2 h/d); watching television (mean 2.1 h/d).

	<p>Crutches=3, Manual Wheel Chair=45, Power Wheelchair=17. Intervention: None. Survey. Outcome Measures: Participation in, and satisfaction with, 49 recreational activities.</p>	<ol style="list-style-type: none"> 2. The higher the intensity of activity, the lower the participation rate was among all injury levels. 3. The C7-T6 group spent the most time engaged in recreational activities and also had the highest number of activities participated per year. 4. The T7-S4 had significantly more hours spent in high-intensity activities than did the other 2 groupings. 5. The average number of participants per activity decreased with increasing intensity levels of activity (i.e., mild=35, moderate=22, high=9). 6. Satisfaction scores varied from 3.8 to 4.3 out of 5 across all activity categories and all injury groupings, indicating a high and consistent satisfaction rate.
--	--	--