

**Research Summary – Spinal Cord Injury Spasticity Evaluation Tool (SCI-SET) – Spasticity**

Author Year Research Design Setting (country)	Demographics and Injury Characteristics of Sample	Validity	Reliability	Responsiveness Interpretability
<p><a href="#">Sweatman et al.</a> 2020</p> <p>Rasch analysis of the SCI-SET and PRISM represents a secondary analysis of data collected as part of a collaborative research project of the SCI Model Systems Centers; providing a <b>Modified SCI-SET</b>.</p> <p>Participating Spinal Cord Injury Model Systems Centers.</p>	<p>Of the 1239 participants (self-selected convenience sample) meeting inclusion criteria (chronic traumatic SCI; primarily dependent on wheelchair for mobility), 1118 (90%) completed the SCI-SET, and 1080 (87%) completed the PRISM self-reported instruments.</p> <p><b>SCI-SET:</b> 760M, 358F Age (%): - &lt;25 y: 6% - 25-35 y: 21% - 36-45 y: 18% - 46-55 y: 25% - 56-65 y: 20% - &gt;65 y: 10% Level of injury/AIS classification:</p>	<p>Pearson correlation coefficients among the original (SCI-SET and PRISM) and modified measures (Modified PRISM [physical, psychological, and social] and Modified SCI-SET) are statistically significant. Almost all measures share &gt;50% of their variance. Modified SCI-SET and Modified PRISM correlations are negative, reflecting the contrasting polarity of their rating scales: low SCI-SET scores reflect problems while low PRISM scores reflect no problems.</p> <p>See table 1.</p>	<p><b>Person separation reliability:</b></p> <ul style="list-style-type: none"> <li>- Original SCI-SET: 0.93</li> <li>- Modified SCI-SET: 0.93</li> </ul> <p><b>Cronbach <math>\alpha</math>:</b></p> <ul style="list-style-type: none"> <li>- Original SCI-SET: 0.96</li> <li>- Modified SCI-SET: 0.96</li> </ul>	<p><b>Measurement properties of original SCI-SET and Modified SCI-SET:</b> See table 2.</p>

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	- Cervical AIS A/B: 34% - Cervical AIS C/D: 25% - Thoracic AIS A/B: 30% - Thoracic AIS C/D: 11% Time since injury: - Less than 2 years: 11% - Two years or more: 89%																																																
<p>Table 1. Measurement properties of original and modified scales: Pearson correlation coefficients</p> <table border="1" data-bbox="474 781 1829 1117"> <thead> <tr> <th rowspan="2">Assessment</th> <th rowspan="2">Modified SCI-SET</th> <th colspan="3">Modified PRISM</th> </tr> <tr> <th>Physical</th> <th>Psychological</th> <th>Social</th> </tr> </thead> <tbody> <tr> <td>SCI-SET</td> <td>0.975</td> <td>-0.492</td> <td>-0.640</td> <td>-0.561</td> </tr> <tr> <td>PRISM</td> <td>-0.538</td> <td>0.922</td> <td>0.855</td> <td>0.742</td> </tr> <tr> <td>Modified PRISM Physical</td> <td>-0.468</td> <td></td> <td>0.752</td> <td>0.678</td> </tr> <tr> <td>Modified PRISM Psychological</td> <td>-0.603</td> <td></td> <td></td> <td>0.825</td> </tr> <tr> <td>Modified PRISM Social</td> <td>-0.528</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>NOTE, Spearman correlation values significant at <math>p &lt; 0.01</math>; 2-tailed shown.</p> <p>Table 2. Measurement properties of original SCI-SET and Modified SCI-SET</p> <table border="1" data-bbox="474 1240 1696 1424"> <thead> <tr> <th>Property</th> <th>Original SCI-SET</th> <th>Modified SCI-SET</th> </tr> </thead> <tbody> <tr> <td>No. of misfitting items</td> <td>3</td> <td>0</td> </tr> <tr> <td>Point-measure correlation range</td> <td>0.41-0.73</td> <td>0.37-0.71</td> </tr> <tr> <td>Variance explained by measures, % (eigenvalue)</td> <td>42.8 (26.2)</td> <td>41.2 (23.9)</td> </tr> </tbody> </table>					Assessment	Modified SCI-SET	Modified PRISM			Physical	Psychological	Social	SCI-SET	0.975	-0.492	-0.640	-0.561	PRISM	-0.538	0.922	0.855	0.742	Modified PRISM Physical	-0.468		0.752	0.678	Modified PRISM Psychological	-0.603			0.825	Modified PRISM Social	-0.528				Property	Original SCI-SET	Modified SCI-SET	No. of misfitting items	3	0	Point-measure correlation range	0.41-0.73	0.37-0.71	Variance explained by measures, % (eigenvalue)	42.8 (26.2)	41.2 (23.9)
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<p><a href="#">Tibbett et al.</a> 2019</p> <p>RCT</p> <p>Miami, USA</p>	<p>N=19 (17M, 2F) Mean age=39.5±10.2 years Mean time since injury=15.6±11.0 years AIS A/B/C: 12/2/5 Injury level: C5-T12</p>		<p><b>Test-retest, inter-rater, intra-rater:</b> Test-retest reliability for transfer-related variables (p&lt;0.05) Spasm duration: ρ=0.846 Spasm magnitude: ρ=0.705 Percent of transfer: ρ=0.807 Transfer duration: ρ=0.656</p>	
<p><a href="#">Adams et al.</a> 2007</p>	<p>Study 3 N=61 Male=45 Female=16</p>	<p>Pearson correlation between SCI-SET scores and: Self-assessment of Spasticity Severity</p>	<p><b>Internal consistency:</b> Cronbach's α=0.90</p>	<p><b>Interpretability:</b> Across groups SCI-SET scores ranged from -2.35 to 0.00 with a mean (SD) of -0.65</p>

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<p>Scale development and assessment</p> <p>General community</p>	<p>Paraplegia=24 Tetraplegia=37</p> <p>Mean (SD) time since injury = 10.2 (8.6)</p>	<p>r=-0.48, p&lt;.001 Self-assessment of Spasticity Impact r=-0.61, p&lt;.001 Functional Independence Measure motor score r=0.21, p=.12 Quality of Life Index health and functioning subscale r=0.68, p&lt;.001 PSFS r=-0.66, p&lt;.001</p>	<p><b>Test-retest, inter-rater, intra-rater:</b> ICC=0.91 (one week interval)</p>	<p>(0.56) Mean scores for patients with Paraplegia = -0.62 (0.57) Mean scores for patients with Tetraplegia = -0.67 (0.57)</p> <p>SEM for SCI-SET score (calculated from data in Adams et al. 2007): 0.17 MDC for SCI-SET score (calculated from data in Adams et al. 2007): 0.47</p>

**Research Summary – Spinal Cord Injury Spasticity Evaluation Tool (SCI-SET) – Spasticity - Cross-cultural Validation Studies**

Author Year Research Design Setting (country)	Demographics and Injury Characteristics of Sample	Validity	Reliability	Responsiveness Interpretability
<p><a href="#">Akpinar et al.</a> 2017</p> <p>Cross-sectional validation study (SCI-SET Turkish adaptation)</p> <p>Inpatient rehabilitation unit of an education and research hospital</p>	<p>N=66 (40M, 26F) Mean age=44.06±14.47 years Type of injury: 45 paraplegic, 21 tetraplegic ASIA grade: 13 A, 10 B, 19 C, 24 D Etiology: 14 traffic accidents, 4 violence, 26 falls, 2 diving, 10 tumor/infection, 10 sports</p>	<p>There were statistically significant correlations between the SCI-SETT and both self-assessment of spasticity severity (<math>r=-0.41</math>) and self-assessment of spasticity impact (<math>r=-0.47</math>) scores (<math>p&lt;0.05</math>). There were no statistically significant correlations between the SCI-SETT and the PSFS, and the FIM motor subscale. There was a statistically significant correlation between the SCI-SETT and vitality scores of the SF-36 (<math>r=0.46</math>), (<math>p&lt;0.05</math>).</p>	<p><b>Internal consistency:</b> SCI-SET<sub>T</sub> showed high internal consistency (<math>[\alpha]=0.95</math>)</p> <p><b>Test-retest, inter-rater, intra-rater:</b> ICC=0.80 (95% confidence interval: 0.68-0.87, <math>p&lt;0.001</math>)</p>	
<p><a href="#">Ansari et al.</a> 2017</p>	<p>N=100 (58M, 48F)</p>	<p>Pearson correlation test performed to assess the level of</p>	<p><b>Internal consistency:</b></p>	<p><b>Floor/ceiling effect:</b> none observed</p>

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<p>Cross-sectional and prospective cohort validation study (SCI-SET Persian adaptation)</p> <p>University Neurological Physiotherapy Clinic</p>	<p>Mean age= 39.0±11.0 years Range 20.0-69.0 Duration since SCI= 14.4±11.5 years Etiology: 49 motor-vehicle crashes, 16 falls, 35 other Level of injury: 28 cervical, 38 thoracic, 34 lumbar ASIA grade: 49 A, 18 B, 25 C, 8 D</p>	<p>construct validity of the SCI-SETP did not find statistically significant positive correlation between the SCI-SETP and the PFIM-Motor subscale (r=0.14, p=0.18) or the PFIM-Cognitive subscale (0.13, p=0.20).</p>	<p>Internal consistency (<math>\alpha=0.862</math>)</p> <p><b>Test-retest, inter-rater, intra-rater:</b> Test-retest reliability for the SCI-SETp total scores was excellent (ICC<sub>agreement</sub> = 0.84, 95% CI 0.74–0.91, p&lt;0.001)</p>	<p><b>Interpretability:</b> SEM and the SDC for SCI-SETP were 0.30 (CI 95%= ±0.59) and 0.82, respectively</p>