

**Research Summary – Brief Symptom Inventory (BSI) – Mental Health**

<b>Author Year Country Research Design Setting</b>	<b>Demographics and Injury Characteristics of Sample</b>	<b>Validity</b>	<b>Reliability</b>	<b>Responsiveness Interpretability</b>
<p><a href="#">Shabany et al. 2018</a></p> <p>Cross-sectional psychometric study</p> <p>Brain and Spinal Cord Injury Research Center in Tehran, Iran</p>	<p>N=97 (77M, 20F) Age: 25≥ (N=13), 26-35 (N=47), 36-45 (N=16), 46-55 (N=11), 55≤ (N=10)</p> <p>SCI duration: 1-5 (N=77), 6-10 (N=10), 11-15 (N=2), 16-20 (N=7), 20≤ (N=1)</p> <p>79.4% Paraplegia, 20.6% Tetraplegia; 61.9% Complete injury, 38.1% Incomplete injury</p> <p>Inclusion criteria:</p> <ul style="list-style-type: none"> <li>• persons with traumatic SCI (paraplegia and tetraplegia)</li> <li>• ≥1 year post-injury</li> </ul>	<p><b>Convergent:</b> BSI with Spinal Cord Injury Lifestyle Scale (SCILS): Depression: r = -0.48 Anxiety: r = -0.42 BSI with Health Behaviour Questionnaire (HBQ): Depression: r = -0.33 Anxiety: r = -0.17</p>		

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	<ul style="list-style-type: none"> <li>able to read/comprehe nd Persian</li> <li>≥18 years</li> </ul> Exclusion criteria: cognitive disorders													
<a href="#">Mitchell et al. 2008</a>  Comparison of two self-report instruments with a structured diagnostic interview to investigate the properties of the Depression Anxiety Stress Scale-21 (DASS-21) in patients with SCI.  South Australian	N=40 Male=30 Female=10 Mean time since injury=113.9 months  Paraplegia=26 Tetraplegia=14  Table 1	BSI (D) w/ Depression Anxiety Stress Scale (D): r = 0.70; P<.01  BSI (A) w/ Depression Anxiety Stress Scale (A): r = 0.61; P<.01		<b>Interpretability</b> See table 1 below										
<table border="1"> <thead> <tr> <th data-bbox="472 1027 861 1128">Subscale:</th> <th data-bbox="861 1027 1066 1128">Mean (SD) score:</th> </tr> </thead> <tbody> <tr> <td data-bbox="472 1128 861 1187">Somatization</td> <td data-bbox="861 1128 1066 1187">60.52 (9.36)</td> </tr> <tr> <td data-bbox="472 1187 861 1245">Obsessive-compulsive</td> <td data-bbox="861 1187 1066 1245">53.42 (11.39)</td> </tr> <tr> <td data-bbox="472 1245 861 1304">Interpersonal sensitivity</td> <td data-bbox="861 1245 1066 1304">52.85 (13.46)</td> </tr> <tr> <td data-bbox="472 1304 861 1372">Depression</td> <td data-bbox="861 1304 1066 1372">55.95 (12.49)</td> </tr> </tbody> </table>		Subscale:	Mean (SD) score:	Somatization	60.52 (9.36)	Obsessive-compulsive	53.42 (11.39)	Interpersonal sensitivity	52.85 (13.46)	Depression	55.95 (12.49)			
Subscale:	Mean (SD) score:													
Somatization	60.52 (9.36)													
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Spinal Cord Injuries Service	Anxiety	52.40 (13.65)		
	Hostility	51.20 (11.77)		
	Phobic Anxiety	54.80 (11.70)		
	Paranoid Ideation	53.23 (12.68)		
	Psychoticism	54.10 (10.18)		
	Global Severity Index (GSI)	56.98 (11.69)		
	Positive symptom total	53.53 (12.15)		
	*Patients with SCI report higher levels of distress across all nine BSI subscales and GSI compared to normative samples, and therefore higher cutoff scores for BSI have been proposed for use with patients with SCI.			
<a href="#">Scherer &amp; Cushman 2001</a>	N=20 Age: 51.05±16.44, range 22-78 years	All items on the Assistive Technology Device Predisposition		<b>Interpretability</b> BSI Depression subscale:

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<p>Cross-sectional; assesses the validity of a subset of items of the ATD-PA</p> <p>Acute medical rehabilitation unit in a general hospital</p>	<p>10 female, 10 male</p> <p>13 paraplegia (4 complete), 7 tetraplegia (1 complete)</p>	<p>Assessment (ATD-PA) QOL subset correlate negatively with the BSI depression subscale.</p> <p>Spearman correlations between the BSI, Satisfaction With Life Scale (SWLS) and ATD-PA QOL subset ATD-PA QOL &amp; BSI: <math>r=-0.71</math>, (<math>P&lt;.01</math>) SWLS &amp; BSI: <math>r=-0.64</math>, (<math>P&lt;.01</math>)</p>		<p>BSI mean (SD) score: 59.11 (13.38), range = 42-80</p>
<p><a href="#">Tate et al. 1993</a></p> <p>Retrospective review</p> <p>University of Michigan Medical Center/SCI Rehabilitation Service</p>	<p>Sample 1 N=162 (128M, 34F) Mean age 33.6±9.9yrs Outpatients who had received initial rehab between 1985 and 1989. Time post SCI: 6 months to 5 years 45% paraplegia, 55% tetraplegia.</p>	<p><b>Pearson correlations.</b> There were significant correlations between a) BSI (global severity index; GSI) and Zung total scores (<math>r=0.53</math>; <math>P&lt;.001</math>), b) BSI (depression; DEP) and Zung total scores (<math>r=0.52</math>; <math>P&lt;.001</math>), and</p>	<p><b>Internal Consistency</b> Cronbach's alpha. <math>\alpha=0.96</math></p>	<p><b>Interpretability</b> See table 2 below</p>

<b>Author Year</b> <b>Country</b> <b>Research</b> <b>Design</b> <b>Setting</b>	<b>Demographics and</b> <b>Injury</b> <b>Characteristics of</b> <b>Sample</b>	<b>Validity</b>	<b>Reliability</b>	<b>Responsiveness</b> <b>Interpretability</b>
	<p>Sample 2                      N=30 (28M, 2F)                      Mean age 31.3±12.4yrs                      Consecutively                      admitted inpatients.                      30% paraplegia, 70%                      tetraplegia.                      Acute SCI</p>	<p>c) BSI/GSI and Zung                      affective scores                      (r=0.52; P&lt;.001).</p> <p><b>Cohen's kappa                      coefficient for inter-                      test percent                      agreements.</b></p> <p>Correlations were                      stronger between the                      Zung total and the                      BSI/DEP scores                      (K=0.59; P&lt;.0005; 85%                      agreement) than                      between the Zung                      total and the BSI/GSI                      scores (K=0.44;                      P&lt;.0005; 78%                      agreement).</p> <p><b>Construct validity</b>                      was also investigated                      through factor                      analyses using                      principal components                      methodology and                      varimax rotation.</p>		

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		<p>BSI: none of the scales measured a single separate construct and the factor loadings were different in this population compared to the original test population. There were also problems with factor loading when 3 domains were forced (affective, somatic and cognitive).</p> <p><i>Two experienced clinicians rated participants as depressed or not depressed. The percent agreement with the results of the questionnaires for sample 2 was reported.</i></p>		

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		<p>The clinicians' ratings were in 80% agreement with BSI/DEP scores (kappa=0.44; P&lt;.01) and 67% agreement with the BSI/GSI scores (kappa=0.07 not significant).</p> <p>In terms of percent positive agreement (i.e. sensitivity), the clinicians' ratings were in 57% agreement with the BSI/DEP scores and 29% agreement with the BSI/GSI scores.</p> <p>In terms of percent negative agreement (i.e. specificity), the clinicians' ratings were in 87% agreement with the BSI/DEP scores and 73%</p>		

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		agreement with the BSI/GSI scores.		
	Table 2			
	Subscale:		Mean (SD) score:	
	Somatization		59.3 (11.1)	
	Obsessive-compulsive		55.1 (11.2)	
	Interpersonal sensitivity		54.8 (11.3)	
	Depression		56.6 (11.7)	
	Anxiety		55.2 (12.5)	
	Hostility		54.7 (11.8)	
	Phobic Anxiety		57.0 (10.8)	
	Paranoid Ideation		56.1 (11.9)	
	Psychoticism		56.4 (10.3)	
	Global Severity Index (GSI)		58.0 (12.4)	