

Research Summary – Center of Epidemiological Studies Depression Scale (CES-D) – Mental Health

Author Year Research Design Setting (country)	Demographics and Injury Characteristics of Sample	Validity	Reliability	Responsiveness Interpretability
<p>Kennedy et al. 2019</p> <p>Retrospective case-control study</p> <p>Traumatic Brain Injury (TBI) Repository at a large military medical center in Texas, USA.</p>	<p>Depressive Disorder Diagnosis: N=187 (87.2% male) Mean age (SD): 38.48 (7.53) Mean years in military service (SD): 14.52 (6.87) Months since injury (SD): 56.07 (42.51) CES-D Mean Total Score (SD): 29.64 (12.13)</p> <p>No Depressive Disorder Diagnosis: N=149 (86.6% male) Mean age (SD): 36.72 (7.80) Mean years in military service (SD): 14.85 (7.07) Months since injury (SD): 53.25 (45.05)</p>	<p>AUC (SD) = 0.897 (0.017), 95%CI = 0.864-0.931 The null hypothesis that true AUC = 0.50 was rejected with asymptotic significance $p < 0.001$.</p>		<p>Responsiveness: The minimum distance line from ([x=0,y=1] to [x=1,y=0]) crossed the ROC curve at the point corresponding to CES-D total score of 18, the point with the highest combination of sensitivity (0.824) and specificity (0.826). Using a cut point established in other populations of 16 or more on CES-D total score, sensitivity for current depression in this sample was 0.87 and specificity was 0.77. Accuracy was 82.7% with a Youden index of 0.644.</p> <p>Interpretability: Using a total CES-D</p>

Author Year Research Design Setting (country)	Demographics and Injury Characteristics of Sample	Validity	Reliability	Responsiveness Interpretability
	CES-D Mean Total Score (SD): 9.84 (8.51)			cut score of greater than or equal to 16: True Positive = 163, False Negatives = 24, False Positives = 34, True Negatives = 115. Positive Predictive Value = 0.827, Negative Predictive Value = 0.827 Likelihood ratio = 3.82
<p>Rintala 2013</p> <p>3 phases: Phase 2 involves measures: ISEL-40, SSP Max 5, ISEL-6, SSP Global; Phase 3 involves measures: CESD, LSIA, PSS, RSES; Phase 3 is 3 years after phase 2</p>	<p>N=69, all male Mean age 38.95±11.27 at phase 2. Mean age at onset: 26.29±10.23 Mean time since onset 12.76±7.24 years Men with SCI 32 tetraplegia with AIS-A/B/C 29 paraplegia with AIS-A/B/C 8 with AIS-D</p>		<p>Internal Consistency: Cronbach's alpha for CES-D-20: 0.89</p>	

Author Year Research Design Setting (country)	Demographics and Injury Characteristics of Sample	Validity	Reliability	Responsiveness Interpretability
Houston and Galveston, Texas				
<p>Miller et al. 2008</p> <p>2 week re-test study to assess the reliability and validity of the CESD -20 and CESD -10</p> <p>Tertiary care center in Vancouver, BC</p>	<p>N = 47 individuals, Male = 30 Female = 17</p> <p>Mean age = 40.6</p> <p>Subject 19 years and older who had their SCI for 1 or more years.</p> <p>AIS A = 29 AIS B = 18</p>	<p>CESD 20 correlation w/ Short Form-36*</p> <p>Mental Health: r=0.75 Emotional role function: r=0.55 Vitality: r=0.54 Pain: r=0.27 Social role function: r=0.37 Physical function: r=0.34 Physical role function: r=0.40 General health: r=0.57</p> <p>CESD 20 correlation w/ the visual analogue scale of fatigue (VAS-F) r=0.52</p>	<p>Internal Consistency: Cronbach' alpha for: CESD 20 = 0.91</p> <p>Test-retest: See table 1.</p>	<p>Interpretability: Mean CESD-20 score: 15.2 (range 0-42) 39% of sample scored over 15 30% of sample scored over 19</p>
Table 1.				
CESD item:			ICC:	

Author Year Research Design Setting (country)	Demographics and Injury Characteristics of Sample	Validity	Reliability	Responsiveness Interpretability																																														
			<table border="1"> <tr> <td>1. I was bothered by things</td> <td>0.32</td> </tr> <tr> <td>2. My appetite was poor</td> <td>0.51</td> </tr> <tr> <td>3. I could not shake off the blues</td> <td>0.73</td> </tr> <tr> <td>4. I felt that I was just as good as other people</td> <td>0.11</td> </tr> <tr> <td>5. Trouble keeping my mind on what I was doing</td> <td>0.62</td> </tr> <tr> <td>6. I felt depressed</td> <td>0.67</td> </tr> <tr> <td>7. Everything I did was an effort</td> <td>0.59</td> </tr> <tr> <td>8. I felt hopeful about the future</td> <td>0.59</td> </tr> <tr> <td>9. I thought my life had been a failure</td> <td>0.28</td> </tr> <tr> <td>10. I felt fearful</td> <td>0.47</td> </tr> <tr> <td>11. My sleep was restless</td> <td>0.64</td> </tr> <tr> <td>12. I was happy</td> <td>0.52</td> </tr> <tr> <td>13. I talked less than usual</td> <td>0.64</td> </tr> <tr> <td>14. I felt lonely</td> <td>0.55</td> </tr> <tr> <td>15. People were unfriendly</td> <td>0.43</td> </tr> <tr> <td>16. I enjoyed life</td> <td>0.63</td> </tr> <tr> <td>17. I had crying spells</td> <td>0.54</td> </tr> <tr> <td>18. I felt sad</td> <td>0.62</td> </tr> <tr> <td>19. I felt that people disliked me</td> <td>0.71</td> </tr> <tr> <td>20. I could not get "going"</td> <td>0.68</td> </tr> <tr> <td>CESD 20 total</td> <td>0.87</td> </tr> <tr> <td>CESD 10 total</td> <td>0.85</td> </tr> <tr> <td colspan="2">Items in bold = CESD 10</td> </tr> </table>	1. I was bothered by things	0.32	2. My appetite was poor	0.51	3. I could not shake off the blues	0.73	4. I felt that I was just as good as other people	0.11	5. Trouble keeping my mind on what I was doing	0.62	6. I felt depressed	0.67	7. Everything I did was an effort	0.59	8. I felt hopeful about the future	0.59	9. I thought my life had been a failure	0.28	10. I felt fearful	0.47	11. My sleep was restless	0.64	12. I was happy	0.52	13. I talked less than usual	0.64	14. I felt lonely	0.55	15. People were unfriendly	0.43	16. I enjoyed life	0.63	17. I had crying spells	0.54	18. I felt sad	0.62	19. I felt that people disliked me	0.71	20. I could not get "going"	0.68	CESD 20 total	0.87	CESD 10 total	0.85	Items in bold = CESD 10		
1. I was bothered by things	0.32																																																	
2. My appetite was poor	0.51																																																	
3. I could not shake off the blues	0.73																																																	
4. I felt that I was just as good as other people	0.11																																																	
5. Trouble keeping my mind on what I was doing	0.62																																																	
6. I felt depressed	0.67																																																	
7. Everything I did was an effort	0.59																																																	
8. I felt hopeful about the future	0.59																																																	
9. I thought my life had been a failure	0.28																																																	
10. I felt fearful	0.47																																																	
11. My sleep was restless	0.64																																																	
12. I was happy	0.52																																																	
13. I talked less than usual	0.64																																																	
14. I felt lonely	0.55																																																	
15. People were unfriendly	0.43																																																	
16. I enjoyed life	0.63																																																	
17. I had crying spells	0.54																																																	
18. I felt sad	0.62																																																	
19. I felt that people disliked me	0.71																																																	
20. I could not get "going"	0.68																																																	
CESD 20 total	0.87																																																	
CESD 10 total	0.85																																																	
Items in bold = CESD 10																																																		

Author Year Research Design Setting (country)	Demographics and Injury Characteristics of Sample	Validity	Reliability	Responsiveness Interpretability
<p>Anton et al. 2008</p> <p>2-week methodologic study to assess the internal consistency, reliability and construct validity of the FSS.</p> <p>A tertiary spinal cord rehab facility in Vancouver, Canada</p>	<p>N=48 Male=31 Female=17 Mean age=40.4 Mean time since injury=14.9 years Major cause of injury=motor vehicle collision=27</p> <p>Motor complete SCI=48 Tetraplegia=26 AIS A injuries=30</p>	<p>Pearson correlation CESD correlation with Fatigue Severity Scale (same construct being measured for both) r=0.58</p>		<p>Interpretability: Mean (SD) CES-D-20 score: 16.0 (10.8)</p>
<p>LaChapelle and Alfano 2005</p> <p>SCI patients filled out CES-D, as part of neurobehavioral study</p>	<p>17 SCI patients; 14M, 3F; avg. age= 43.3</p>		<p>Internal Consistency: $\alpha=0.88$ for SCI</p>	

Reviewer ID: Tyra Chu, Carlos L. Cano Herrera

Last updated: January 24th, 2024

Author Year Research Design Setting (country)	Demographics and Injury Characteristics of Sample	Validity	Reliability	Responsiveness Interpretability
Not mentioned				

Research Summary – Center of Epidemiological Studies Short Depression Scale (CES-D-10) – Mental Health

Author Year Research Design Setting (country)	Demographics and Injury Characteristics of Sample	Validity	Reliability	Responsiveness Interpretability								
<p>Miller et al. 2008</p> <p>2 week re-test study to assess the reliability and validity of the CESD -20 and CESD -10</p> <p>Tertiary care center in Vancouver, BC</p>	<p>N = 47 individuals, Male = 30 Female = 17</p> <p>Mean age = 40.6</p> <p>Subject 19 years and older who had their SCI for 1 or more years.</p> <p>AIS A = 29 AIS B = 18</p>	<p>CESD 10 correlation w/SF-36*</p> <p>Mental Health: r=0.71 Emotional role function: r=0.56 Vitality: r=0.60 Pain: r=0.38 Social role function: r=0.42 Physical function: r=0.37 Physical role function: r=0.49 General health: r=0.60 *P<0.05</p> <p>CESD 10 correlation w/ the VAS-F r=0.57</p>	<p>Internal Consistency: Cronbach's alpha for: CESD 10 = 0.86</p> <p>Test-retest, Inter-rater, Intra-rater: Test-retest: See table 1.</p>	<p>Interpretability: Mean CESD-10 score: 9.7 (range 0-25) 38.3% scored over 10</p>								
<p>Table 1.</p> <table border="1"> <thead> <tr> <th>CESD item:</th> <th>ICC:</th> </tr> </thead> <tbody> <tr> <td>1. I was bothered by things</td> <td>0.32</td> </tr> <tr> <td>2. My appetite was poor</td> <td>0.51</td> </tr> <tr> <td>3. I could not shake off the blues</td> <td>0.73</td> </tr> </tbody> </table>					CESD item:	ICC:	1. I was bothered by things	0.32	2. My appetite was poor	0.51	3. I could not shake off the blues	0.73
CESD item:	ICC:											
1. I was bothered by things	0.32											
2. My appetite was poor	0.51											
3. I could not shake off the blues	0.73											

Author Year Research Design Setting (country)	Demographics and Injury Characteristics of Sample	Validity	Reliability	Responsiveness Interpretability
			4. I felt that I was just as good as other people 0.11	
			5. Trouble keeping my mind on what I was doing 0.62	
			6. I felt depressed 0.67	
			7. Everything I did was an effort 0.59	
			8. I felt hopeful about the future 0.59	
			9. I thought my life had been a failure 0.28	
			10. I felt fearful 0.47	
			11. My sleep was restless 0.64	
			12. I was happy 0.52	
			13. I talked less than usual 0.64	
			14. I felt lonely 0.55	
			15. People were unfriendly 0.43	
			16. I enjoyed life 0.63	
			17. I had crying spells 0.54	
			18. I felt sad 0.62	
			19. I felt that people disliked me 0.71	
			20. I could not get "going" 0.68	
			CESD 20 total 0.87	
			CESD 10 total 0.85	
			Items in bold = CESD 10	

Research Summary – Center of Epidemiological Studies Depression Scale (CES-D) – Mental Health – Cross-cultural Validation Studies

Author Year Research Design Setting (country)	Demographics and Injury Characteristics of Sample	Validity	Reliability	Responsiveness Interpretability
<p>Kuptniratsaikul et al. 2002</p> <p>Cross-sectional study to examine the Receiver Operating Curve (ROC) and logistic regression of the Thai CES-D</p> <p>Not mentioned</p>	<p>N=83 (79.5% male, 20.5% female) Mean age: 33±11.7 years (range 10-68 years)</p> <p>Complete quadriplegia = 25% Complete paraplegia = 33.7% Incomplete lesions = 41%</p>	<p>ROC curve = 0.826</p>		<p>Responsiveness: Sensitivity = 80.0% Specificity = 69.8%</p> <p>Interpretability: Positive predictive value = 45.7 (95% CI: 29.2%–63.1%) Negative predictive value = 91.7% (95% CI: 79.1%-97.3%)</p>