

**Research Summary – Satisfaction with Life Scale (SWLS, Deiner Scale) – Quality of Life**

<b>Author Year Research Design Setting (country)</b>	<b>Demographics and Injury Characteristics of Sample</b>	<b>Validity</b>	<b>Reliability</b>	<b>Responsiveness Interpretability</b>
<p><a href="#">Amtmann et al.</a> 2019</p> <p>Study to examine measurement invariance across the groups, unidimensionality, local independence, reliability from a classical test and item response theory (IRT) framework, and fit to a unidimensional IRT model. USA</p>	<p>17897 participants with SCI, TBI, or burn injury, participating in the Model Systems. Total sample: N = 17897 13448M, 4449F Mean (SD) age 38.85 (17.58) years</p> <p>Sample with SCI: N = 8566 6766M, 1800F Mean (SD) age 38.94 (16.44) Paraplegia incomplete (n = 1640) Paraplegia complete (n = 2082) Paraplegia minimal deficit (n = 27) Tetraplegia incomplete (n = 3082) Tetraplegia complete (n = 1310) Tetraplegia minimal</p>		<p>The classical test theory analysis supported adequate reliability (<math>\alpha = .85</math>) of the SWL scale. Item 5, "If I could live my life over, I would change almost nothing," did not contribute positively to the overall reliability, with <math>\alpha</math> increasing to .86 with the item's removal. Item- total correlations ranged from 0.52 (Item 5) to 0.75 (Item 3).</p>	<p>The results support unidimensionality and local independence of the SWLS</p>

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	deficit (n = 43) Tetraplegia normal neurologic (n = 6) Unknown (n =376)  All data for the current study were collected at 1 year following injury onset.			
<a href="#">Post et al.</a> 2012  Cross-sectional study 5 years after discharge from inpatient rehab  8 rehab centres with specialized SCI units	145 SCI participants (104 men, 41 women) mean age: 45.4±13.7  27 incomplete paraplegia 65 complete paraplegia 16 incomplete tetraplegia 37 complete tetraplegia  116 traumatic SCI, 29 non-traumatic	(ns = P>.05) Correlation between the SWLS and scales measuring different constructs: FIM-Motor: 0.14 (ns) Level of injury: 0.21 (P<.05) Completeness of injury: 0.15 (ns) Cause of injury: 0.02 (ns) Age: -0.19 (P<.05) Sex: 0.02 (ns) Education: 0.05 (ns)	<b>Internal                      consistency:</b> Cronbach's alpha for the whole scale = 0.83  Corrected item-to- total correlations for the questions ranged from 0.47 to 0.74	

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		Spearman's correlations: Correlation between the SWLS and scales measuring the same construct as the SWLS: Life Satisfaction Questionnaire (LISAT-9) vs. SWLS: 0.60 (ns) SWLS vs. MHI-5 (mental health subscale of SF-36): 0.48 (P<.01) SWLS vs. SIP-SOC (social dimension of SIP-68): -0.41 (P<.01)		
<a href="#">Hitzig et al.</a> 2012  Cross-sectional telephone survey  Rehabilitation institute	N=618 (M=501; F=117) Mean age = 49.2y (18-92) Mean YPI = 16.3y (1-60)  Community-dwelling SCI patients who were at least 1 year postinjury.	To evaluate the construct validity of the Reintegration to Normal Living Index (RNL) compared with the SWLS, a 3 factor CFA model was fit to the combined items of both scales.		<b>Interpretability:</b> Mean SWLS score = 21.4±7.4

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	<p>Incomplete tetraplegia = 203                      Complete tetraplegia = 102                      Incomplete paraplegia = 156                      Complete paraplegia = 157</p>	<p>A 1-factor CFA of items of both scales yielded poor fit (RMSEA = 0.173, CFI = 0.822, TLI = 0.908).                      The 3-factor model was an appropriate fit (RMSEA = 0.067, CFI = 0.963, TLI = 0.986).                      Interfactor correlations showed a stronger relationship between the scores of the 2 factors of the RNL Index than between each factor and the SWLS. Hence, the 3-factor CFA supports our hypothesis that the SWLS and RNL Index assess distinct, although related, constructs.</p>		
<p><a href="#">Geyh et al.</a> 2010</p>	<p>N=243                      Mean age=41.4 ± 13.6                      % male = 79.4</p>		<p><b>Test-retest, inter-rater, intra-rater:</b></p>	<p><b>Interpretability:</b>                      See table 1.</p>

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<p>Cross-sectional multi-centre study</p> <p>Out-patients with SCI from study centers in Australia, Brazil, Canada, Israel, South Africa, and the US</p>	<p>% female = 20.6 Mean time since onset = 139.6±138.8 months</p> <p>SCI</p> <p>% paraplegia = 45.7 % tetraplegia = 54.3</p> <p>Completeness of injury (AIS)</p> <p>% complete (A) = 47.7 % incomplete (B-D) = 43.6 % unspecified = 8.6</p>		<p>Person reliability index: r=0.88</p>																																									
<p>Table 1. SWLS scores for 6 countries</p>																																												
<table border="1"> <thead> <tr> <th data-bbox="474 1057 653 1214">Item</th> <th data-bbox="653 1057 800 1214">ALL (n=243) Mean (SD)</th> <th data-bbox="800 1057 947 1214">AUS (n=40) Mean (SD)</th> <th data-bbox="947 1057 1094 1214">BRZ (n=34) Mean (SD)</th> <th data-bbox="1094 1057 1241 1214">CAN (n=34) Mean (SD)</th> <th data-bbox="1241 1057 1388 1214">ISR (n=71) Mean (SD)</th> <th data-bbox="1388 1057 1535 1214">RSA (n=30) Mean (SD)</th> <th data-bbox="1535 1057 1734 1214">USA (n=34) Mean (SD)</th> </tr> </thead> <tbody> <tr> <td data-bbox="474 1214 653 1263">SWLS 1</td> <td data-bbox="653 1214 800 1263">3.3 (1.9)</td> <td data-bbox="800 1214 947 1263">2.9 (1.4)</td> <td data-bbox="947 1214 1094 1263">3.5 (1.8)</td> <td data-bbox="1094 1214 1241 1263">4.1 (2.1)</td> <td data-bbox="1241 1214 1388 1263">3.3 (1.8)</td> <td data-bbox="1388 1214 1535 1263">2.5 (1.7)</td> <td data-bbox="1535 1214 1734 1263">3.6 (2.2)</td> </tr> <tr> <td data-bbox="474 1263 653 1312">SWLS 2</td> <td data-bbox="653 1263 800 1312">3.5 (1.9)</td> <td data-bbox="800 1263 947 1312">3.4 (1.5)</td> <td data-bbox="947 1263 1094 1312">3.7 (1.7)</td> <td data-bbox="1094 1263 1241 1312">4.2 (2.1)</td> <td data-bbox="1241 1263 1388 1312">3.5 (1.9)</td> <td data-bbox="1388 1263 1535 1312">2.7 (1.8)</td> <td data-bbox="1535 1263 1734 1312">3.7 (2.2)</td> </tr> <tr> <td data-bbox="474 1312 653 1360">SWLS 3</td> <td data-bbox="653 1312 800 1360">4.0 (1.9)</td> <td data-bbox="800 1312 947 1360">4.1 (1.4)</td> <td data-bbox="947 1312 1094 1360">3.7 (2.0)</td> <td data-bbox="1094 1312 1241 1360">4.4 (2.0)</td> <td data-bbox="1241 1312 1388 1360">3.9 (1.9)</td> <td data-bbox="1388 1312 1535 1360">3.6 (1.9)</td> <td data-bbox="1535 1312 1734 1360">4.3 (2.1)</td> </tr> <tr> <td data-bbox="474 1360 653 1404">SWLS 4</td> <td data-bbox="653 1360 800 1404">3.9 (1.8)</td> <td data-bbox="800 1360 947 1404">4.0 (1.4)</td> <td data-bbox="947 1360 1094 1404">3.5 (2.0)</td> <td data-bbox="1094 1360 1241 1404">4.6 (1.7)</td> <td data-bbox="1241 1360 1388 1404">3.8 (1.8)</td> <td data-bbox="1388 1360 1535 1404">3.0 (1.4)</td> <td data-bbox="1535 1360 1734 1404">4.4 (1.8)</td> </tr> </tbody> </table>					Item	ALL (n=243) Mean (SD)	AUS (n=40) Mean (SD)	BRZ (n=34) Mean (SD)	CAN (n=34) Mean (SD)	ISR (n=71) Mean (SD)	RSA (n=30) Mean (SD)	USA (n=34) Mean (SD)	SWLS 1	3.3 (1.9)	2.9 (1.4)	3.5 (1.8)	4.1 (2.1)	3.3 (1.8)	2.5 (1.7)	3.6 (2.2)	SWLS 2	3.5 (1.9)	3.4 (1.5)	3.7 (1.7)	4.2 (2.1)	3.5 (1.9)	2.7 (1.8)	3.7 (2.2)	SWLS 3	4.0 (1.9)	4.1 (1.4)	3.7 (2.0)	4.4 (2.0)	3.9 (1.9)	3.6 (1.9)	4.3 (2.1)	SWLS 4	3.9 (1.8)	4.0 (1.4)	3.5 (2.0)	4.6 (1.7)	3.8 (1.8)	3.0 (1.4)	4.4 (1.8)
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	SWLS 5	3.5 (1.9)	2.9 (1.4)	2.9 (1.8)	3.0 (1.7)	4.8 (1.9)	2.3 (1.3)	3.5 (2.0)
	<b>SWLS total</b>	18.2 (7.4)	17.2 (6.0)	17.3 (7.5)	20.2 (7.7)	19.3 (7.1)	14.1 (6.7)	19.6 (8.5)
<a href="#">Krause et al.</a> 2009  Follow-up survey	727 SCI subjects mean age: 47.9 70.2% male 75.8% White		<u>Spearman Rank                      correlations between                      SWLS and:</u>		<b>Internal                      consistency:</b> Cronbach's alpha= 0.92.			

AUS = Australia  
 BRZ = Brazil  
 CAN = Canada  
 ISR = Israel  
 RSA = Republic of South-Africa  
 USA = United States of America

Standard error of item location for the SWLS items:

Item	SE
SWLS 1	0.05
SWLS 2	0.05
SWLS 3	0.05
SWLS 4	0.06
SWLS 5	0.05

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<p>Hospital in the Southeastern United States</p>	<p>53.3% cervical injury Average years since injury = 18.2</p> <p>A total of 1,385 participants were enrolled in the original study in 1997–1998. Participants were then contacted in 2007–2008 to participate in a follow-up survey. At that time, 306 were deceased, 34 could not be located, and 5 were eliminated. Responses were received by 727 participants, yielding an adjusted response rate of 69.5% percent.</p>	<p>Patient Health Questionnaire-9 (PHQ-9): -0.477 Major depressive disorder: -0.335 Older Adult Health and Mood Questionnaire (OAHMQ): -0.538 (P&lt;.0001 for all the above)</p>		
<p><a href="#">Richardson &amp; Richards</a> 2008</p> <p>Retrospective analysis</p>	<p>2570 participants</p> <p>1 year postinjury: 682 subjects (535 M, 147F) mean age: 38.66±15.32</p>	<p>With PHQ-9: Among persons 1 year postinjury, both affective and somatic subscores showed a</p>		

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National Spinal Cord Injury Database (NSCID)	5 years postinjury: 517 subjects (402M, 115F) mean age: 40.26±14.53 15 years postinjury: 653 subjects (518M, 135F) mean age: 42.72±10.09 25 years postinjury: 718 subjects (558M, 160F) mean age: 49.49±8.60	significant inverse correlation with satisfaction with life ( $r_s = -.463$ , $P < .001$ , and $r_s = -.346$ , $P < .001$ , respectively). Significant negative correlations were also found between SWLS scores and factor subscores at 5 years postinjury ( $r_s = -.415$ , $P < .001$ for the somatic subscore; $r_s = -.456$ , $P < .001$ for the affective subscore) and at 15 years postinjury ( $r_s = -.404$ , $P < .001$ , for the affective subscore; $r_s = -.248$ , $P < .001$ , for the somatic subscore). Authors did not state if the negative correlation was expected. Regarding the 25 years postinjury		



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		<p>group, the affective subscale also correlated significantly, and in a negative direction, with satisfaction with life (<math>r_s = -.368</math>, <math>P &lt; .001</math>). A significant negative relationship was also found with the somatic subscale for the 25 year postinjury group (<math>r_s = -.255</math>, <math>P &lt; .001</math>).</p>		
<p><a href="#">Johnston et al.</a> 2005</p> <p>Cross-sectional survey</p> <p>New Jersey Outpatient SCI Center</p>	<p>N=107 (88M, 19F) Mean age 39.1(11.16) Median age 38.0 Mean post-injury time: 11.36(9.56) yrs Median post-injury time: 8.71 yrs Community-living traumatic SCI individuals</p>	<p>Pearson's r btwn SWLS and ASIA Motor Score: -0.07 (<math>P = 0.55</math>)</p>		

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	ASIA-A/B/C/D: 56.4%/20.2%/14.9%/8.5 % Neurologic Category: - Tetraplegia complete: 38.7% - Tetraplegia incomplete: 15.1% - Paraplegia complete: 37.6% Paraplegia incomplete: 8.6%			
<p><a href="#">Scherer &amp; Cushman</a> 2001</p> <p>Cross-sectional</p> <p>Acute medical rehabilitation unit in a general hospital</p>	<p>N=20                      Age: 51.05±16.44, range                      22-78 years                      10 female, 10 male</p> <p>13 paraplegia (4                      complete), 7                      tetraplegia (1                      complete)</p>	<p><u>Spearman correlations                      between the Brief                      Symptom Inventory                      (BSI), SWLS and                      Assistive Technology                      Device Predisposition                      Assessment (ATD-PA)                      QOL subset</u>                      ATD-PA QOL &amp; SWLS:  <math>\rho=0.89</math>, (<math>P&lt;.01</math>)                      BSI &amp; SWLS: <math>\rho=-0.64</math>,                      (<math>P&lt;.01</math>)</p>		<p><b>Interpretability:</b>                      See table 1.</p>

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		<p>Correlations between the 5 SWLS and 11 QOL subset items were positive and generally high, with the exception of QOL item 16.</p> <p>Of the 55 correlation coefficients among SWLS and QOL items, 69.1% were significant: 18 at <math>P &lt; .01</math> and 20 at <math>P &lt; .05</math>.</p>																
	<p>Table 1.</p> <table border="1" data-bbox="474 930 1619 1190"> <thead> <tr> <th data-bbox="474 930 1373 967">Item</th> <th data-bbox="1377 930 1619 967">Mean (SD)</th> </tr> </thead> <tbody> <tr> <td data-bbox="474 971 1373 1003">1. In most ways my life is close to ideal</td> <td data-bbox="1377 971 1619 1003">3.40 (2.58)</td> </tr> <tr> <td data-bbox="474 1006 1373 1039">2. The conditions of my life are excellent</td> <td data-bbox="1377 1006 1619 1039">3.05 (2.04)</td> </tr> <tr> <td data-bbox="474 1042 1373 1075">3. I am satisfied with my life</td> <td data-bbox="1377 1042 1619 1075">4.05 (2.46)</td> </tr> <tr> <td data-bbox="474 1078 1373 1110">4. So far I have gotten the important things I want in life</td> <td data-bbox="1377 1078 1619 1110">4.05 (2.11)</td> </tr> <tr> <td data-bbox="474 1114 1373 1146">5. If I could live my life over, I would change almost nothing</td> <td data-bbox="1377 1114 1619 1146">3.45 (2.19)</td> </tr> <tr> <td data-bbox="474 1149 1373 1187"><b>SWLS total</b></td> <td data-bbox="1377 1149 1619 1187">10.5 (5.9)</td> </tr> </tbody> </table>				Item	Mean (SD)	1. In most ways my life is close to ideal	3.40 (2.58)	2. The conditions of my life are excellent	3.05 (2.04)	3. I am satisfied with my life	4.05 (2.46)	4. So far I have gotten the important things I want in life	4.05 (2.11)	5. If I could live my life over, I would change almost nothing	3.45 (2.19)	<b>SWLS total</b>	10.5 (5.9)
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<p><a href="#">Dijkers</a> 1999</p>	<p>N=2183 (1766M, 417F) # participants in each age range:</p>	<p><i>SWLS scores were correlated to those for the Functional Independence</i></p>	<p><b>Internal consistency:</b> Principal component factor analysis</p>	<p><b>Interpretability:</b> Summary statistics for</p>														

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<p>Survey; follow-up study</p> <p>National SCI database</p>	<p>0-19: N=412 20-29: N=802 30-39: N=444 40-49: N=268 50-59: N=142 &gt;60: N=115</p> <p>Records from the National SCI database, containing entries since 1973.</p>	<p><i>Measure (FIM) and the Craig Handicap Assessment and Reporting Technique (CHART).</i></p> <p><b>ANOVA and Eta<sup>2</sup>.</b> Both FIM subscales (motor and sociocognitive) and all four CHART subscales (physical independence, mobility, social integration and occupation) were significantly correlated to SLWS scores (P&lt;.001). Effect size (Eta<sup>2</sup>): <u>FIM</u> motor = 0.05 sociocognitive = 0.02 <u>CHART</u> physical independence = 0.14 mobility = 0.11</p>	<p>revealed one factor, which explained 61.1% of the variance. Item loadings ranged from 0.64 to 0.84.</p> <p><b>Test-retest, inter-rater, intra-rater:</b> A subgroup (n=165) completed the SLWS twice, with a follow-up interval range of 93-626 days. Test-retest correlation for the whole scale was 0.65 and for individual items was between 0.39 and 0.60 (P&lt;.001 for all).</p>	<p>the 5 SWLS items and SWLS total: (n=2183) See table 1.</p> <p>SEM for total SWLS (calculated from data in Dijkers et al. 1999): 4.67 MDC for total SWLS (calculated from data in Dijkers et al. 1999): 12.95</p>

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		<p>social integration = 0.11 occupation = 0.14</p> <p><b>Stepwise Regression Analysis.</b> (Beta weights and significance level indicated in brackets.)</p> <p>Adding the FIM motor (0.21, P&lt;.0001) and sociocognitive (0.10, P&lt;.0001) variables into the regression produced an R<sup>2</sup> value of 0.14.</p> <p>Adding the CHART subscales of physical independence, mobility (0.26, P&lt;.0001), occupation (0.10, P&lt;.001) and social integration (0.11, P&lt;.0001) produced an R<sup>2</sup> value of 0.23.</p>		
	Table 1.			
	<b>Item</b>		<b>Mean (SD)</b>	

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Last updated: February 13th, 2024

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		1. In most ways my life is close to ideal	3.76 (2.06)	
		2. The conditions of my life are excellent	3.75 (2.01)	
		3. I am satisfied with my life	4.34 (2.02)	
		4. So far I have gotten the important things I want in life	4.28 (2.01)	
		5. If I could live my life over, I would change almost nothing	3.29 (2.10)	
		<b>SWLS total</b>	19.4 (7.9)	