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

| **Author YearResearch Design****Setting (country)** | **Demographics and Injury Characteristics of Sample** | **Validity** | **Reliability** | **Responsiveness Interpretability** |
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| [Amtmann et al.](https://pubmed.ncbi.nlm.nih.gov/29214853/) 2019Study 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 | 17897 participants with SCI, TBI, or burn injury, participating in the Model Systems. Total sample:N = 1789713448M, 4449FMean (SD) age 38.85 (17.58) yearsSample with SCI:N = 85666766M, 1800FMean (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 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.  |  | The classical test theory analysis supported adequate reliability (α = .85) 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 α increasing to .86 with the item’s removal. Item- total correlations ranged from 0.52 (Item 5) to 0.75 (Item 3).  | The results support unidimensionality and local independence of the SWLS |
| [Post et al.](https://pubmed.ncbi.nlm.nih.gov/22484088/) 2012Cross-sectional study 5 years after discharge from inpatient rehab8 rehab centres with specialized SCI units | 145 SCI participants (104 men, 41 women)mean age: 45.4±13.727 incomplete paraplegia65 complete paraplegia16 incomplete tetraplegia37 complete tetraplegia116 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)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) | **Internal consistency:**Cronbach’s alpha for the whole scale = 0.83Corrected item-to-total correlations for the questions ranged from 0.47 to 0.74 |  |
| [Hitzig et al.](https://pubmed.ncbi.nlm.nih.gov/22200389/) 2012Cross-sectional telephone surveyRehabilitation 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.Incomplete tetraplegia = 203Complete tetraplegia = 102Incomplete paraplegia = 156Complete paraplegia = 157 | 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.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. |  | **Interpretability:**Mean SWLS score = 21.4±7.4 |
| [Geyh et al.](https://pubmed.ncbi.nlm.nih.gov/20815864/) 2010Cross-sectional multi-centre studyOut-patients with SCI from study centers in Australia, Brazil, Canada, Israel, South Africa, and the US | N=243Mean age=41.4 ± 13.6% male = 79.4% female = 20.6Mean time since onset = 139.6±138.8 monthsSCI% paraplegia = 45.7% tetraplegia = 54.3Completeness of injury (AIS)% complete (A) = 47.7% incomplete (B-D) = 43.6% unspecified = 8.6 |  | **Test-retest, inter-rater, intra-rater:**Person reliability index: r=0.88 | **Interpretability:**See table 1. |
| Table 1. SWLS scores for 6 countries

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| **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) |
| 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) |
| **SWLS total** | 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) |

AUS = AustraliaBRZ = BrazilCAN = CanadaISR = IsraelRSA = Republic of South-AfricaUSA = United States of America Standard error of item location for the SWLS items:

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| **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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| [Krause et al.](https://pubmed.ncbi.nlm.nih.gov/19929126/) 2009Follow-up surveyHospital in the Southeastern United States | 727 SCI subjectsmean age: 47.970.2% male75.8% White53.3% cervical injuryAverage years since injury = 18.2A 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. | Spearman Rank correlations between SWLS and:Patient Health Questionnaire-9 (PHQ-9): -0.477Major depressive disorder: -0.335Older Adult Health and Mood Questionnaire (OAHMQ): -0.538 (P<.0001 for all the above) | **Internal consistency:**Cronbach’s alpha= 0.92. |  |
| [Richardson & Richards](https://psycnet.apa.org/record/2008-06402-016) 2008Retrospective analysisNational Spinal Cord Injury Database (NSCID) | 2570 participants1 year postinjury: 682 subjects (535 M, 147F)mean age: 38.66±15.325 years postinjury:517 subjects (402M, 115F)mean age: 40.26±14.5315 years postinjury: 653 subjects (518M,135F)mean age: 42.72±10.0925 years postinjury: 718 subjects (558M, 160F)mean age: 49.49±8.60 | With PHQ-9:Among persons 1 year postinjury, both affective and somatic subscores showed a 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 group, the affective subscale also correlated significantly, and in a negative direction, with satisfaction with life (*r*s=-.368, P*<.*001). A significant negative relationship was also found with the somatic subscale for the 25 year postinjury group (*r*s=-.255, P*<.*001). |  |  |
| [Johnston et al.](https://pubmed.ncbi.nlm.nih.gov/16048141/) 2005Cross-sectional surveyNew Jersey Outpatient SCI Center | N=107 (88M, 19F)Mean age 39.1(11.16)Median age 38.0Mean post-injury time: 11.36(9.56) yrsMedian post-injury time: 8.71 yrs Community-living traumatic SCI individualsASIA-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% | Pearson’s r btwn SWLS and ASIA Motor Score: -0.07 (P=0.55) |  |  |
| [Scherer & Cushman](https://pubmed.ncbi.nlm.nih.gov/11394589/) 2001Cross-sectionalAcute medical rehabilitation unit in a general hospital | N=20Age: 51.05±16.44, range 22-78 years10 female, 10 male13 paraplegia (4 complete), 7 tetraplegia (1 complete) | Spearman correlations between the Brief Symptom Inventory (BSI), SWLS and Assistive Technology Device Predisposition Assessment (ATD-PA) QOL subsetATD-PA QOL & SWLS: ρ=0.89, (P<.01)BSI & SWLS: ρ=-0.64, (P<.01)Correlations between the 5 SWLS and 11 QOL subset items were positive and generally high, with the exception of QOL item 16.Of the 55 correlation coefficients among SWLS and QOL items, 69.1% were significant: 18 at P<.01 and 20 at P<.05. |  | **Interpretability:**See table 1. |
|  | Table 1.

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| **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) |
| **SWLS total** | 10.5 (5.9) |

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| [Dijkers](https://pubmed.ncbi.nlm.nih.gov/10453761/) 1999Survey; follow-up studyNational SCI database | N=2183 (1766M, 417F)# participants in each age range:0-19: N=41220-29: N=80230-39: N=44440-49: N=26850-59: N=142>60: N=115Records from the National SCI database, containing entries since 1973. | *SWLS scores were correlated to those for the Functional Independence Measure (FIM) and the Craig Handicap Assessment and Reporting Technique (CHART).* **ANOVA and Eta².**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<.001).Effect size (Eta²):FIM motor = 0.05sociocognitive = 0.02CHARTphysical independence = 0.14mobility = 0.11social integration = 0.11occupation = 0.14**Stepwise Regression Analysis.** (Beta weights and significance level indicated in brackets.)Adding the FIM motor (0.21, P<.0001) and sociocognitive (0.10, P<.0001) variables into the regression produced an R² value of 0.14.Adding the CHART subscales of physical independence, mobility (0.26, P<.0001), occupation (0.10, P<.001) and social integration (0.11, P<.0001) produced an R² value of 0.23. | **Internal consistency:**Principal component factor analysis revealed one factor, which explained 61.1% of the variance. Item loadings ranged from 0.64 to 0.84.**Test-retest, inter-rater, intra-rater:**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<.001 for all). | **Interpretability:**Summary statistics for the 5 SWLS items and SWLS total: (n=2183)See table 1.SEM for total SWLS (calculated from data in Dijkers et al. 1999): 4.67MDC for total SWLS (calculated from data in Dijkers et al. 1999): 12.95 |
|  | Table 1.

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| **Item** | **Mean (SD)** |
| 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) |
| **SWLS total** | 19.4 (7.9) |

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