**Research Summary – World Health Organization Quality of Life – Abbreviated Version (WHOQOL-BREF) – Quality of Life**

| **Author Year**  **Country  Research Design**  **Setting** | **Demographics and Injury Characteristics of Sample** | **Validity** | **Reliability** | **Responsiveness Interpretability** |
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| [Xavier de Franca et al. (2011)](https://pubmed.ncbi.nlm.nih.gov/22241194/)  Cross-sectional study  Community in Brazil | N=47, 91.5% male  Mean (SD) age: 42.95 (14.12) years  Age range:  13-30 years: 23  31-48 years: 19  49-64 years: 5 |  | **Internal Consistency**  Cronbach’s α: 0.73 |  |
| [Miller et al.](http://www.ncbi.nlm.nih.gov/pubmed/17909558)  [(2008)](http://www.ncbi.nlm.nih.gov/pubmed/17909558)  Cross-sectional, confirmatory factor analysis  4 chapters (Alberta, Saskatchewan, Nova Scotia and Manitoba) of the Canadian Paraplegic Association | N=161 SCI (77% male)  Mean age: 46.88 ± 15.52 years | Income was positively related to WHOQOL-BREF domains:  Physical health (*r*=.24, P<0.01)  Social relationships (*r*=.24, P<0.01)  Environmental (*r*=.40, P<0.01)  Education was positively related to WHOQOL-BREF domains:  Physical health (*r*=.20, P<0.05)  Psychological (*r*=.19, P<0.05)  Social relationships (*r*=.18, P<0.05)  Environmental (*r*=.28, P<0.01)  Time since injury is positively related to WHOQOL-BREF domains:  Psychological (*r*=.23, P<0.01).  Self-esteem, as measured by the *Rosenberg Self-Esteem Scale*, is positively related to WHOQOL-BREF domains:  Physical health (*r*=.54, P<0.01)  Psychological (*r*=.62, P<0.01)  Social relationships (*r*=.41, P<0.01)  Environmental (*r*=.43, P<0.01)  Acceptance of disability, as measured by the *Acceptance of Disability Scale*, is positively related to WHOQOL-BREF domains:  Physical health (*r*=.72, P<0.01)  Psychological (*r*=.51, P<0.01)  Environmental (*r*=.46, P<0.05) | **Internal Consistency**  Cronbach’s α:  Physical Health Domain: 0.82  Psychological Domain: 0.82  Social Relationship Domain: 0.74  Environment Domain: 0.80 |  |
| [Lin et al. (2007)](http://www.ncbi.nlm.nih.gov/pubmed/17075363)  Cross-sectional; Telephone interviews to compare the psychometric performance of the WHOQOL with the SF-36  Subjects were identified from a nationwide registry of 809 traumatic SCI cases in Taiwan | N=187 (151 men)  Mean Age = 50.3 years  Mean time since injury = 7.4 years  48 incomplete tetraplegia  28 complete tetraplegia  73 incomplete paraplegia  38 complete paraplegia | Correlations between the WHOQOL-Bref subscales and the SF-36 subscales measuring the same constructs:  The rho of the conceptually related domains between the WHOQOL-BREF and the SF-36 (overall QoL & general health-general health; Physical Capacity-Physical Functioning/Role physical/bodily pain; Psychological well-being-social functioning/role emotional/mental health; social relationships-social functioning) are higher than 0.4, with the exception of the WHOQOL-BREF’s Psychological Well-Being and the SF-36’s Role Emotional (rho = 0.37)  The rho of the rating scale with the domains of the WHOQOL-BREF were all greater than 0.4  All P<.0001  The ability of the WHOQOL-BREF to discriminate among subgroups with respect to age, education, marital status, employment, time since injury, level of injury, and self-care ability was tested using the Mann-Whitney U-test.  Overall, the WHOQOL-BREF domains significantly discriminated between subgroups in terms of 4 characteristics\*\*.  \*Overall QOL and General Health, Physical Health Domain, Psychological Domain, Social Relationships Domain, Environment Domain  \*\*Marital status, employment status, level of injury, self-care ability (all domains P≤0.05) | **Internal Consistency**  Cronbach’s α:  Overall QOL & General Health: 0.79  Physical Health Domain: 0.87  Psychological Domain: 0.83  Social Relationship Domain: 0.75  Environment Domain: 0.86  **Test-retest, Inter-rater, Intra-rater**  10 subjects were contacted for re-assessment by same initial interviewer within 2 weeks.  Test-retest (intra-rater) reliability:  Overall QOL and General Health: ICC=0.84  Physical Health Domain: ICC=0.93  Psychological Domain: ICC=0.98  Social Relationship Domain: ICC=0.84  Environment Domain: ICC=0.89  10 subjects were contacted for re-assessment by different initial interviewer within 2 weeks.  Test-retest (inter-rater) reliability:  Overall QOL and General Health: ICC=0.63  Physical Health Domain: ICC=0.88  Psychological Health Domain: ICC=0.95  Social Relationship Domain: ICC=0.56  Environment Domain: ICC=0.80 | **Responsiveness**  Subjects who are employed and who are unemployed after SCI (all employed before SCI) were interviewed for a second time to recall their health related QoL at the time of the injury:  Effect Sizes of WHOQOL-BREF:  Overall QOL and general health domain (combined for this study): 1.01  Physical Health Domain: 1.83  Psychological Health Domain: 0.78  Social Relationship Domain: 1.16  Environment Domain: 0.78  **Interpretability**  N=187 (151 men), Mean Age = 50.3 years, 121 incomplete, 111 paraplegia  Mean (SD) scores for each WHOQOL-Bref domain and SEM, MDC calculated from data in Lin et al. 2007: see table 1 below  **Floor Effect** (number of patients scored minimally): n (%)  Overall QOL and general health Domain: 2 (1.3)  Physical Health Domain:7 (0)  Psychological Health Domain: 6 (0.0)  Social Relationship Domain: 3 (0.0)  Environment Domain: 8 (0.4)  **Ceiling Effect** (number of patients scored maximally): n (%)  Overall QOL and general health Domain: 2 (0.4)  Physical Health Domain: 7 (0.0)  Psychological Health Domain: 6 (0.0)  Social Relationship Domain: 3 (0.4)  Environment Domain: 8 (0.0) |
| Table 1   |  |  |  |  | | --- | --- | --- | --- | | **Domain** | **Mean (SD) score:** | **SEM** | **MDC** | | Overall QOL/General Health Items | 52.4 (19.4) | 7.8 | 21.5 | | Physical health Domain | 56.1 (19.6) | 5.2 | 14.4 | | Psychological Domain | 53.7 (16.9) | 2.4 | 6.6 | | Social relationships Domain | 58.9 (16.1) | 6.4 | 17.9 | | Environment Domain | 53.1 (15.3) | 5.1 | 14.1 | | | | |
| [Chapin (2004)](http://www.ncbi.nlm.nih.gov/pubmed/15371026)  Cross-sectional; concurrent and factorial validity explored  Canadian Paraplegic Association | N=132  Mean age = 45.82  Paraplegic SCI | Sense of Well-Being Inventory (SWBI) and \*WHOQOL-BREF  Pearson correlations:  SWBI Psychological and WHOQOL-BREF psychological domain: r=0.75  SWBI Physical and WHOQOL-BREF physical health domain: r=0.63  SWBI Family/social and WHOQOL-BREF social relationships domain: r=0.63  SWBI Financial/Environment and WHOQOL-BREF environment domain: r=0.59 |  |  |
| [Jang et al. (2004)](http://www.ncbi.nlm.nih.gov/pubmed/15520987)  Cross-sectional validation study using multi-trait analysis and known-groups methods  Community and hospital, Taiwan | N=111 (SCI) & 169 (non-SCI)  SCI mean age = 40 ±13 years  Non-SCI mean age = 37 ±12 years  SCI participants:  Complete tetraplegia = 23  Incomplete tetraplegia = 28  Complete paraplegia = 43  Incomplete paraplegia = 17 | Item scale correlation structure showed that all facetsA had the highest correlations with the domainB to which they were originally assigned by the WHOQOL group.  Analysis by t-test of the WHOQOL-Bref scale and subscales to examine differences between different groups completing the WHOQOL-Bref  Overall QOL facet: t=4.94\*\*  Overall General Health facet: t=10.85\*\*  Physical Health DomainB: t=13.23\*\*  Psychological Domain: t=6.91\*\*  Social Relationship Domain: t=5.92\*\*  Environment Domain: t=2.31\*  \*\*P<.001; \*P=.022  AFacet defined as an aspect of life contributing to QOL, each item (26 total) represents one facet  BDomain defined as a collection of related items, therefore also a collection of facets  When controlling for gender, education, and employment status, all facet and domain scores were influenced by the SCI and non-SCI group except the environment domain (t=0.86, P=.389) | **Internal Consistency**  Cronbach’s α:  Physical Health Domain: 0.75  Psychological Domain: 0.74  Social Relationship Domain: 0.54  Environment Domain: 0.78 | **Interpretability**  N = 111 SCI (mean age = 40 (13) years) & 169 non-SCI (mean age = 37 (12) years)  See table 3 below  This study used a different scoring scheme, in which domain scores are the means of their respective item scores, which are then multiplied by 4. Domain scores ranges from 4 to 20.  **Floor/ Ceiling Effect**  Floor Effect (number of patients scored minimally): n (%)  Overall QOL facet: 6 (5.4)  General Health facet: 10 (9.0)  Physical Health Domain: 0 (0.0)  Psychological Health Domain: 0 (0.0)  Social Relationship Domain: 0 (0.0)  Environment Domain: 0 (0.0)  Ceiling Effect (number of patients scored maximally): n (%)  Overall QOL facet: 1 (0.9)  General Health facet: 2 (1.8)  Physical Health Domain: 1 (0.9)  Psychological Health Domain: 1 (0.9)  Social Relationship Domain: 0 (0.0)  Environment Domain: 0 (0.0) |
| Table 3   |  |  |  | | --- | --- | --- | | **Facet and Domain:** | **Non-SCI** | **SCI** | | Overall QOL Item | 13.92 (2.69) | 12.14 (3.28) | | General health Item | 14.22 (2.72) | 10.16 (3.27) | | Physical health Domain | 15.44 (1.84) | 11.41 (2.84) | | Psychological Domain | 13.75 (2.12) | 11.74 (2.73) | | Social relationships Domain | 14.25 (2.21) | 12.54 (2.58) | | Environment Domain | 12.85 (2.13) | 12.18 (2.55) | | | | |

**Research Summary – World Health Organization Quality of Life – Abbreviated Version (WHOQOL-BREF) – Quality of Life – Cross-cultural Validation Studies**

| **Author Year**  **Country  Research Design**  **Setting** | **Demographics and Injury Characteristics of Sample** | **Validity** | **Reliability** | **Responsiveness Interpretability** |
| --- | --- | --- | --- | --- |
| [Chang et al. (2022)](https://pubmed.ncbi.nlm.nih.gov/33263492/)  Cross-sectional Study to validate the WHOQOL Scales (WHOQOL-BREF and WHOQOL-DIS module) in China  Shanghai Sunshine Rehabilitation Center | N=62 in-patient participants with SCI,  Age: 18-70 years  Duration of injury: ≥ 6 months  Exclusion criteria: adults with cognitive impairment or on their second admission for rehabilitation | WHOQOL-BREF domains and WHOQOL-DIS scores showed the predicted pattern among *a priori* known groups | **Internal Consistency**  Cronbach’s α: >0.70 for three domains except the social domain (0.59)  **Test-retest**  - Good for the two general items and 3 domains  - Correlation coefficients of the social domain (0.67) and those of three domains (0.63–0.67) were below the acceptable level (<0.7)  Inter-rater reliability was not performed in this study. |  |
| [Salvador-De La Barrera et al. (2018)](https://pubmed.ncbi.nlm.nih.gov/29795170/)  Psychometric study for Spanish version of WHOQOL-BREF  Spinal Cord Injury Unit, Complejo Hospitalario Universitario de A Coruña, Galicia (Spain) | N=54, 44 male  Mean (SD) age: 45.5 (13.2) years  20 cervical, 28 thoracic, 6 lumbar/sacral |  | **Internal Consistency**  Cronbach’s α:  Overall: 0.887  Physical Health Domain: 0.731  Psychological Health Domain: 0.859  Social Relationships Domain: 0.68  Environment Domain: 0.65  **Test-retest, Inter-rater, Intra-rater**  Two-week test-retest reliability: ICC = 0.85 | **Interpretability**  Mean (SD) scores:  Perceived overall QOL question: 66.20 (20.69)  Health status question: 56.48 (22.35)  Physical domain: 61.55 (17.44)  Psychological domain: 67.76 (19.33)  Social relationship domain: 65.43 (21.37)  Environment domain: 69.09 (12.90)  **Floor and ceiling effects** are <2% in all domains  Ceiling effect for perceived overall QOL question: 11.1%  Ceiling effect for health status question: 9.3% |
| [Suttiwong et al. (2013)](http://www.ncbi.nlm.nih.gov/pubmed/24259849)  Cross-sectional validation of Thai version of IPAQ  Thai community | N=139, 110M 29F  Mean age 34.2±8.4  Mean time after injury 10.6±7.1yrs  49 quadriplegia, 90 paraplegia  137 (or more) were traumatic SCIs  Wheelchair as primary mobility tool | Spearman’s r of WHOQOL-BREF\*\* (Thai) subscales with Impact on Participation and Autonomy Questionnaire (Thai, IPAQ) subdomains (N=30):  WHOQOL Physical:  Autonomy Indoors = -0.56\*  Family role = -0.55\*  Autonomy outdoors = -0.49\*  Social life and relationships = -0.39\*  Work and education = -0.37  WHOQOL Psychosocial:  Autonomy Indoors = -0.46\*  Family role = -0.55\*  Autonomy outdoors = -0.59\*  Social life and relationships = -0.34  Work and education = -0.37\*  WHOQOL Social Relation:  Autonomy Indoors = -0.44\*  Family role = -0.47\*  Autonomy outdoors = -0.65\*  Social life and relationships = -0.40\*  Work and education = -0.33  WHOQOL Environmental:  Autonomy Indoors = -0.30  Family role = -0.36\*  Autonomy outdoors = -0.59\*  Social life and relationships = -0.33  Work and education = -0.35  \*Indicates significant correlations. Statistical significance was not defined in article.  \*\*Raw domain scores instead of transformed domain scores used for correlations |  |  |
|  | Table 1   |  |  |  |  | | --- | --- | --- | --- | | **Domain** | **Mean (SD) score:** | **SEM** | **MDC** | | Overall QOL/General Health Items | 52.4 (19.4) | 7.8 | 21.5 | | Physical health Domain | 56.1 (19.6) | 5.2 | 14.4 | | Psychological Domain | 53.7 (16.9) | 2.4 | 6.6 | | Social relationships Domain | 58.9 (16.1) | 6.4 | 17.9 | | Environment Domain | 53.1 (15.3) | 5.1 | 14.1 | | | | |
| [Chan & Chan (2006)](http://www.ncbi.nlm.nih.gov/pubmed/16796239)  Cross-sectional; used Hong Kong version of WHOQOL-BREF  Hong Kong | N=31 (25 male, 6 female)  Mean Age: 41.68±11.17  9 high tetraplegia (C1-C4)  8 low tetraplegia (C5-C8)  8 high paraplegia (T1-T9)  6 low paraplegia (T10-S) | Correlations between the WHOQOL-BREF (HK) domains and the Chinese Version of Quebec User Evaluation with Assistive Technology (C-QUEST):  C-QUEST Devices domain with WHOQOL-BREF:  Overall QOL and General Health\*: r=0.412, P<0.05  Physical Health Domain: r=0.508, P<0.05  Psychological Domain\*\*: r=0.344, P=0.056  Social Relationships Domain: r=0.460, P<0.05  Environment Domain: r=0.567, P<0.05  The Device scores were positively and moderately correlated with the domain scores of the WHOQOL-BREF (HK), except the psychological health domain, which has a marginal correlation with the Device score.  C-QUEST Services domain with WHOQOL-BREF:  Overall QOL and General Health\*: r=0.120, P>0.05  Physical Health Domain: r=0.307, P>0.05  Psychological Domain\*\*: r=0.023, P>0.05  Social Relationships Domain: r=0.242, P>0.05  Environment Domain: r=0.333, P>0.05  The Service scores are not significantly associated with the score on the WHOQOL-BREF (HK), P>0.05.  \*2 items regarding overall QOL and general health  \*\*2 extra Hong Kong-specific items |  | **Interpretability**  N=31 (25 male, 6 female) Mean Age: 41.68±11.17  See table 2 below |
| Table 2   |  |  | | --- | --- | | **Domain** | **Mean (SD) score:** | | Overall QOL/General Health Items | 56.00 (16.57) | | Physical health Domain | 41.81 (17.89) | | Psychological Domain | 54.32 (18.63) | | Social relationships Domain | 55.90 (15.55) | | Environment Domain | 50.71 (13.09) | | | | |