

Short Form 36 (SF-36)

Assessment Overview

Assessment Area

ICF Domain:
Quality of Life

You Will Need

Length:

36 items

Scoring:

- Raw score is transformed to 0-100 scoring system (Algorithm available in the manual, which must be purchased)
- Score is norm-based; the mean score for the general population is 50 with a standard deviation of 10
- Higher score indicates better health status
- The SF-36 can also be scored using two norm-based summary scores, a physical and a mental component score (PCS & MCS).

Summary

The Medical Outcomes Study Short Form 36 (SF-36) is a generic health status measure that was introduced in 1992, and has been translated into various languages. The SF-36 assesses health-related quality of life using 8 domains, regarding either physical or mental functioning, both of which can also be summarized into a composite score: the physical (PCS) and mental (MCS) component summary.

The SF-36 is self-administered with scoring done by the clinician/researcher.

Availability

Available for free [here](#).

Languages: 50+ languages

Assessment Interpretability

Minimal Clinically Important Difference

Not established in SCI
For a sample of patients with osteoarthritis:

Worsening:

Physical functioning = 5.3

Bodily pain = 7.2

PCS = 2.0

Improving:

Physical functioning = 3.3

Bodily pain = 7.8

PCS = 2.0

(Angst et al. 2001; n=122; 2201 males; mean age: 65 years)

Statistical Error

Minimal Detectable Change:

Physical functioning=21.4

Role physical=14.7

Bodily pain=7.4

General health=7.9

Vitality=4.6

Social functioning=5.9

Role emotional=4.1

Mental health=7.4

(Lin et al. 2007; n=187; 151 males; 48 incomplete tetraplegia, 28 complete tetraplegia, 73 incomplete paraplegia, 38 complete paraplegia; mean time since injury: 7.4 years)

Typical Values

Mean (SD) Scores:

Physical functioning: 61.2(39.8)

Role physical: 62.7(44.4)

Bodily pain: 67.5(20.6)

General health: 52.5(20.3)

Vitality: 57.0(17.3)

Social functioning: 71.8(22.2)

Role emotional: 71.8(40.9)

Mental health: 63.5(15.5)

(Lin et al. 2007; n=187; 151 males; 48 incomplete tetraplegia, 28 complete tetraplegia, 73 incomplete paraplegia, 38 complete paraplegia; mean time since injury: 7.4 years)

Threshold Values:

Not established in SCI. But in the general population:
Mental health (MH) score of ≤ 52 is “indicative of emotional problems probably of any psychiatric disorder”.
MCS of ≤ 42 is “indicative of clinical depression”.

(Ware et al. 1994)

(Silveira et al 2005; N=545-555; Swedish women, aged 70-84; MH cut-off: sensitivity=58%, specificity=92%; MCS cut-off: sensitivity=71%, specificity=82%)

Measurement Properties

Validity – **Low** to **High**

Moderate correlation with Life Satisfaction Questionnaire 9 (LISAT-9):
 $\rho = 0.531$

Low correlation with Functional Independence Measure (FIM):
 $\rho = 0.094$

(van Leeuwen et al. 2012; n=145; 104 males; 27 incomplete paraplegia, 65 complete paraplegia, 16 incomplete tetraplegia, 37 complete tetraplegia; 5 years post-discharge from inpatient rehabilitation)

Low to **High** correlation with WHO Quality of Life – BREF (WHOQOL-BREF):
 $\rho = 0.24-0.78$

(Lin et al. 2007; n=187; 151 males; 48 incomplete tetraplegia, 28 complete tetraplegia, 73 incomplete paraplegia, 38 complete paraplegia; mean time since injury: 7.4 years)

Moderate correlation with Spinal Cord Independence Measure (SCIM):
 $r = 0.339$

(SCIM Turkish ver.; Unalan et al. 2015; n=204; 144 males; mean age: 39.7 years; 104 ASIA A, 29 ASIA B, 35 ASIA C, 36 ASIA D; mean time since injury = 75.4 months)

Low to **Moderate** correlation with Beck Depression Inventory (BDI):
 $r = 0.229-0.329$

(Ataoglu et al. 2013; n=140; 104 males; mean age: 36.2 years; 79 ASIA A, 61 ASIA B-E; mean time since injury: 25.2 months)

High correlation with MBI factor 1, factor 2, total score, and total SCI score:

Reliability – **Moderate** to **High**

Moderate to **High** Inter-rater Reliability:
ICC = 0.52-0.98

Moderate to **High** Intra-rater Reliability:
ICC = 0.71-0.99

Moderate to **High** Internal Consistency:
 $\alpha = 0.72-0.98$

(Lin et al. 2007; n=187; 151 males; 48 incomplete tetraplegia, 28 complete tetraplegia, 73 incomplete paraplegia, 38 complete paraplegia; mean time since injury: 7.4 years)

Number of studies reporting reliability data: 5

$r=0.522, P<0.001; r=0.590, P<0.001, r=0.580, P<0.00, 0.574, p < 0.001)$

(Ferfeli et al. 2024; n=100; 50 Stroke, 50 SCI; 9 ASIA A, 5 ASIA B, 13 ASIA C, 23 ASIA D)

Moderate correlation with the Moorong Self Efficacy Scale (MSES) total score and subscales:

$r = 0.30, p<0.44$

(Italian version of MSES; Marquez et al. 2022; n=65; 41 males; mean age: 55.4 years; 17 ASIA A, 41 ASIA B, 3 ASIA C, 4 ASIA D)

Moderate negative correlation with the Work Rehabilitation Questionnaire (WORQ) score:

$r = 0.561, p<0.001$

(Russian version of WORQ; Vasilchenko et al. 2022; n=304; 247 males; mean age: 38 years; 95 ASIA A, 83 ASIA B, 79 ASIA C, 47 ASIA D; mean (SD) time since injury: 7.2 (7.1) years)

Moderate correlation between the Caregiver Burden Inventory in SCI (CBI-SCI) and all SF-36 subscales ($p < 0.001$):

SF-36 Subscale—Vitality: $r = -0.45$

SF-36 Subscale—Physical functioning: $r = -0.35$

SF-36 Subscale—Bodily pain: $r = -0.48$

SF-36 Subscale—General health: $r = -0.50$

SF-36 Subscale—Physical role functioning: $r = -0.49$

SF-36 Subscale—Emotional role functioning: $r = -0.45$

SF-36 Subscale—Social role functioning: $r = -0.58$

SF-36 Subscale—Mental health: $r = -0.52$

(Conti et al. 2019; n=176; 30 males; mean (SD) age: 56.2 (14.6) years)

Number of studies reporting validity data: 17

Responsiveness

Floor/Ceiling Effect:

Percentage of patients at lowest score:

Items 3a-3j: 29%

Items 3g, 3h, 3i: >90%

(Lee et al. 2009; n=305, 83% male; mean age: 44 years; SCI patients with neuropathic bladder, 55% tetraplegia; mean time since injury: 14 years)

2 subscales >20%

Percentage of patients at highest score:

3 subscales >20%

(Lin et al. 2007; n=187; 151 males; 48 incomplete tetraplegia, 28 complete tetraplegia, 73 incomplete paraplegia, 38 complete paraplegia; mean time since injury: 7.4 years)

Effect Size:

Physical Functioning Domain: 0.36

Physical Composite Score: 0.58

Mental Composite Score: 0.71

(Lee et al. 2009; n=305, 83% male; mean age: 44 years; SCI patients with neuropathic bladder, 55% tetraplegia; mean time since injury: 14 years)

Number of studies reporting responsiveness data: 7