

# Multidimensional Pain Inventory (MPI) – SCI version

## Assessment Overview

### Assessment Area

**ICF Domain:**

Body Functions

**Subcategory:**

Sensory Functions

**Sections:**

Pain Impact (5 subscales)

Responses by Significant Others

(3 subscales)

General Activities (4 subscales)

### You Will Need

**Length:**

15-20 minutes, 50 items

**Scoring:**

Each item scored 0-6, total and mean subscale scores are calculated.

Total score is not used.

### Summary

The Multidimensional Pain Inventory (MPI)-SCI is theoretically linked to the cognitive-behavioral conceptualization of chronic pain, where emphasis is placed on the assessment of subjective distress and the impact of pain on patient's lives.

The questionnaire can be self-completed or done via interview/proxy and is not considered to be a burden to patients.

Derived from the MPI, the MPI-SCI was developed specifically for use in SCI populations. Although evidence supports the use of the MPI-SCI to assess the impact of chronic pain with SCI populations, more psychometric evidence is needed to warrant its sustained use.

The MPI-SCI consists of 3 sections (12 subscales total):

- 1) Pain Impact (life interference, support, life control, pain severity, affective distress)
- 2) Responses by Significant Others (distracting responses, negative responses, solicitous responses)
- 3) General Activities (household activities, activities away from home, social activities, outdoor work)

### Availability

**Worksheet:** Can be found in the appendix of the following article:

<https://pubmed.ncbi.nlm.nih.gov/11887122/>

**Languages:** English (The non-SCI MPI is available in Swedish, Dutch, German, Italian, Spanish, Portuguese, French and Japanese).

## Assessment Interpretability

### Minimal Clinically Important Difference

Not established in SCI

### Statistical Error

Not established in SCI

### Typical Values

**Mean (SD) Scores:**

For general activities section:  
"Persons with tetraplegia scored lower (34.3±16.4) than those with paraplegia (45.0±19.4)"

(Widerstrom-Noga et al. 2006; n=161; 138 males, 23 females; 76 cervical, 84 below cervical; 93 complete injury, 50 incomplete injury, 18 not determining; mean (SD) time since injury: 10.9 (7.8) years)

## Validity – Low to High

### High correlation between MPI-SCI life interference subscale and Pain Disabilities Index:

$r = 0.61$

(Cruz-Almeida et al. 2009; n=180; 155 males, 25 females; mean age: 41.6 (13.4) years; mean (SD) time since injury: 9.5 (8.9))

### High correlation between MPI-SCI life interference subscale and Brief Pain Inventory (BPI):

$r = 0.75$  ( $P < 0.000$ )

(Soler et al. 2013; n=126; 78 males, 48 females; ASIA A-C; 43 traumatic, 83 non-traumatic; mean (SD): 11.8 (10.8) years)

### High correlation between MPI-SCI pain severity subscale and the Pain Intensity on Numeric Rating Scale:

$r = 0.61$  ( $P < 0.000$ )

### High correlation between MPI-SCI life interference subscale and the Pain Disability Index:

$r = 0.61$  ( $P < 0.000$ )

(Widerstrom-Noga et al. 2006; n=161; 138 males, 23 females; 76 cervical, 84 below cervical; 93 complete injury, 50 incomplete injury, 18 not determining; mean (SD) time since injury: 10.9 (7.8) years)

### Moderate to High correlation between MPI-SCI life interference subscale and Pain Interference with Daily Activities subscale:

$r = 0.58-0.61$

(Cruz-Almeida et al. 2009; n=180; 155 males, 25 females; mean age: 41.6 (13.4) years; mean (SD) time since injury: 9.5 (8.9))

(Widerstrom-Noga et al. 2006; n=161; 138 males, 23 females; 76 cervical, 84 below cervical; 93 complete injury, 50 incomplete injury, 18 not determining; mean (SD) time since injury: 10.9 (7.8) years)

### Moderate correlation between MPI-SCI pain interference with activities subscale and BPI:

$r = 0.50$  ( $P < 0.000$ )

(Soler et al. 2013; n=126; 78 males, 48 females; ASIA A-C; 43 traumatic, 83 non-traumatic; mean (SD): 11.8 (10.8) years)

### Moderate correlation between MPI-SCI affective distress subscale and Beck Depression Inventory (BDI):

$r = 0.39-0.48$  ( $P < 0.000$ )

## Reliability – Low to High

### Low to High Test-retest reliability for MPI-SCI Subscales:

ICC = 0.26-0.86

(Widerstrom-Noga et al. 2006; n=161; 138 males, 23 females; 76 cervical, 84 below cervical; 93 complete injury, 50 incomplete injury, 18 not determining; mean (SD) time since injury: 10.9 (7.8) years)

### Low to High Internal Consistency for MPI-SCI Subscales:

$\alpha = 0.66-0.94$

(Soler et al. 2013; n=126; 78 males, 48 females; ASIA A-C; 43 traumatic, 83 non-traumatic; mean (SD): 11.8 (10.8) years)

Number of studies reporting reliability data: 2

**Low to Moderate correlation between MPI-SCI general activity subscale and Functional Independence Measure (FIM):**

$r = -0.17-0.35$  ( $P < 0.05$ )

(Cruz-Almeida et al. 2009;  $n=180$ ; 155 males, 25 females; mean age: 41.6 (13.4) years; mean (SD) time since injury: 9.5 (8.9)

(Soler et al. 2013;  $n=126$ ; 78 males, 48 females; ASIA A-C; 43 traumatic, 83 non-traumatic; mean (SD): 11.8 (10.8) years)

**Low correlation between MPI-SCI life interference subscale and the General Activity subscale:**

$r = -0.13$

**Low correlation between MPI-SCI life interference subscale and the Average Pain Intensity on Numeric Rating Scale:**

$r = 0.29$

(Cruz-Almeida et al. 2009;  $n=180$ ; 155 males, 25 females; mean age: 41.6 (13.4) years; mean (SD) time since injury: 9.5 (8.9)

**Low correlation between MPI-SCI life interference subscale and the Pain Disability Index:**

$r = 0.23$  ( $P < .05$ )

(Widerstrom-Noga et al. 2006;  $n=161$ ; 138 males, 23 females; 76 cervical, 84 below cervical; 93 complete injury, 50 incomplete injury, 18 not determining; mean (SD) time since injury: 10.9 (7.8) years)

**Number of studies reporting validity data: 4**

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Responsiveness

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**Floor/Ceiling Effect:**

Not established in SCI

**Effect Size:**

Moderate effect size (0.6) comparing tetraplegia and paraplegia regarding general activities section

(Widerstrom-Noga et al. 2006;  $n=161$ ; 138 males, 23 females; 76 cervical, 84 below cervical; 93 complete injury, 50 incomplete injury, 18 not determining; mean (SD) time since injury: 10.9 (7.8) years)

**Number of studies reporting responsiveness data: 1**