Penn Spasm Frequency Scale (PSFS)

Assessment Overview

Assessment Area

ICF Domain:
Body Function
Subcategory:
Neuromusculoskeletal & Movement-related Functions and Structures

You Will Need

Length:
< 5 minutes, 2 items
Training:
None, but understanding of spasticity recommended
Scoring:
Item 1: spasm frequency
Scored 0 (no spasms) to 4 (spontaneous spasms occurring more than 10 times per hour)
Item 2: spasm severity
Scored 0 (mild) to 3 (severe); not answered if spasm frequency scores 0

Summary

The Penn Spasm Frequency Scale (PSFS) is a 2-component self-report measure of the frequency of reported muscle spasms, which is commonly used to quantify spasticity.

The PSFS was developed to augment clinical ratings of spasticity and provide a more comprehensive understanding of an individual's spasticity status, as self-report measures of spasticity, in general, correlate only moderately with clinical examination. This suggests that the elements of spasticity evaluated in the physical examination do not represent what is important to persons with SCI spasticity.

The PSFS is often subject to concomitant subclinical conditions such as bladder fullness, symptomatic urinary tract infection development, anxiety level, room temperature, subject comfort, and many other conditions. The spasm frequency item is more commonly reported than the spasm severity item.

Availability

Worksheet: Can be found [here].

Languages: English

Assessment Interpretability

Minimal Clinically Important Difference

Not established in SCI

Statistical Error

Not established in SCI

Typical Values

Mean (SD) Pre-treatment Scores: 3.3

(Spasm frequency item, modified from PSFS; Aydin et al. 2005; n=21; 6 males, 15 females; traumatic SCI; 5 cervical, 16 thoracic; ASIA A-D; mean (SD) time since injury: 11.48 (13.92) months)

Measurement Properties

Validity – **Low** to **High**

High correlation with SCI Spasticity Evaluation Tool (SCI-SET):
r = -0.66

Moderate correlation with Quality of Life Index (QLI) Health & Functioning Subscale:
r = -0.46

Low correlation with Functional Independence Measure (FIM) Motor Subscale:
r = -0.05

(Spasm frequency item; Adams et al., 2007; N=61, 45 male, mixed injury types, community-dwelling, chronic SCI, mean (SD) time since injury = 10.2 (8.6) years)

Moderate correlation with Ashworth Scale
Ashworth Hip: r = 0.43
Ashworth Knee: r = 0.43
Ashworth Ankle: r = 0.51

(Spasm frequency item; Benz et al. 2005; n=17; C5-T10; ASIA A-D; time since injury: 24-372 months)

Number of studies reporting validity data: 3

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

Moderate to **High** intra-rater reliability for PSFS Part 1 (spasm frequency):
5-10 days: 0.822 (0.709, 0.935)
4-6 weeks: 0.734 (0.586, 0.883)

Moderate to **High** intra-rater reliability for PSFS Part 2 (spasm frequency-severity combination):
5-10 days: 0.812 (0.705, 0.919)
4-6 weeks: 0.729 (0.586, 0.872)

High inter-rater reliability within a 3-day time interval:
Part 1: 0.862 (0.759, 0.965)
Part 2: 0.857 (0.762, 0.952)

(Mills et al. 2018; n=66; 17 males, 49 females; mean (SD) age: 44.1 (12.3) years; C1-S1; AIS A/B/C: 54, AIS D: 12)

Number of studies reporting validity data: 1

Responsiveness

Floor/Ceiling Effect:
Not established in SCI

Effect Size:
1.11

(Cohen's d; spasm frequency item modified from PSFS; Aydin et al. 2005; intrathecal Baclofen pump implantation; n=21, 6 males; 5 cervical, 16 thoracic; ASIA A-D; traumatic SCI; mean (SD) time post-SCI: 11.48 (13.92) months)

Number of studies reporting responsiveness data: 3