Reviewer ID: Jane Hsieh, Carlos L. Cano Herrera, Elsa Sun, Matthew Querée

Last updated: December 31, 2024

Research Summary – Numeric Pain Rating Scale (NPRS) – Pain

Author Year Research Design Setting	**Demographics and Injury Characteristics of Sample**	**Validity**	**Reliability**	**Responsiveness Interpretability**
Sobreira et al. 2021 Observational prospective study to determine the MCIDs for the FSS, among others OMs Two rehabilitation centers in Portugal	N=60 patients with SCI: Mean (SD) age was 54.5 (15.9) years 36M (60%), 24F (40%) Level of injury: Cervical (n=31), thoracic (n=19), lumbar (n=10) ASIA impairment scale classification: A (n=13), B (n=7), C (n=11), D (n=29) Mean (SD) time since injury 5.5 (1.468) months *N=57 patients completed the study (mean [SD] intervention time of 7.3 [1.7] weeks)			**MCID:** -1.16 **Pooled (weighted) MCID:** 1.6 **Estimated using linear regression:** -0.8 **Distribution-based:** 0.8-2.2
Forchheimer et al. 2011 Retrospective analysis	N=6096 Mean age=32.5 (14) years 78.4%M, 21.6%F Mean time since injury =9.8 (9.3) years			**Cut-off Scores:** Pain severity can be categorized into 3 distinct groups as relates to pain interference: 1-3, 4-6, and 7-10

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USA	All Participants had SCI and pain; injury level: 24.3% AIS D, 5.8% paraplegia AIS C, 5.0% paraplegia B, 29.8% paraplegia A, 7.0% tetraplegia AIS C, 8.0% tetraplegia AIS B, 20.1% tetraplegia AIS A Origin: Traumatic.			
Dijkers 2010 Longitudinal observational study USA	N=168 Mean age: 38(18) years 92%M, 8%F Level of injury: 10% paraplegia incomplete, 26% paraplegia complete, 45% tetraplegia incomplete, 19% tetraplegia complete Origin: Traumatic	**Construct validity / convergent validity:** Adequate correlation between NPRS and Verbal Rating Scale (Spearman's r=0.38)		
Bryce et al. 2007 Literature search USA	N=50 health care providers attending the 2006 combined American Spinal Injury Association (ASIA)/International Spinal Cord Society	**Content validity:** In a vote on the validity and usefulness of the NPRS in people with pain related to a SCI, attendees voted as follows:	**Test-retest reliability:** 100%	

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	(ISCoS) scientific meeting	• 64% NPRS is a valid measure and should be part of a minimum dataset for clinical trials • 14% NPRS is a valid measure but should be part of an expanded dataset only • 20% NPRS needs further study to establish reliability and validity before being recommended • 2% NPRS is not valid or relevant for use • 79% NPRS as first choice for a minimum data set over a VRS (16%) and VAS (5%) (n= 57) • Failure rates have been reported to be low: 0-5.3%		

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Hanley et al. 2006 Observational USA	• Cohort 1 (for questions about general pain) (Turner et al. 2001): N=307 Mean age=43.1 (13.0) years 72%M, 28%F Level of injury: 51% tetraplegia, 49% paraplegia Mean (SD) time since injury=12.2 (9.67) years • Cohort 2 (for questions about general pain) (Turner et al. 2002): N=174 Mean age=41.6 (13.6) years 71%M, 29%F Level of injury: 54% tetraplegia, 46% paraplegia Mean (SD) time since injury=8.1 (9.3) years			**Cut-off Scores:** • For rating overall pain: mild = 1-3, moderate = 4-7, severe = 8-10 • For rating worst pain problem: mild = 1-3, moderate = 4-6, severe = 7-10 *For cut-off determination, pain severity on NPRS was compared to pain interference*

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Hanley et al. 2006 Comparative study USA	N=82; mean age=41.44 (10.14) years 54% cervical SCI, 38% thoracic SCI, 7% lumbar/sacral SCI Average pretreatment pain intensity = 5.27 (1.79) on NPRS	Age was significantly and positively correlated with absolute and percent change scores for participants who reported a meaningful change (r=0.48 and 0.46, respectively; *P* values < 0.01) and for those who reported no change (r=−0.45 and −0.40, respectively; *P* values < 0.01). The correlation between percent change and pretreatment pain was statistically significant for the rating, “My pain decreased to a meaningful extent” (*r* = 0.37 for percent change, *r* = 0.57 for absolute change, *P* values <		**Minimally Clinically Important Difference (MCID):** 1.80 points or 36%

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		0.05 and 0.001, respectively).		