

Supplementary Material: Online Resource 2

Article Title: Investigating the Patient Acceptable Symptom State cut-offs: longitudinal data from a community cohort using the Shoulder Pain and Disability Index

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Authors: Gui Tran^{1,2}, Bright Dube^{1,2}, Sarah R Kingsbury^{1,2}, Alan Tennant¹, Philip Conaghan^{1,2,3}, Elizabeth M.A. Hensor^{1,2}

Affiliations: ¹Leeds Institute of Rheumatic and Musculoskeletal Medicine, University of Leeds, Leeds, UK

²NIHR Leeds Biomedical Research Centre, Leeds Teaching Hospitals NHS Trust, Leeds, UK

³Centre for Sport, Exercise and Osteoarthritis Research, Versus Arthritis, Nottingham, UK

CORRESPONDING AUTHOR:

Dr Elizabeth Hensor,

Leeds Institute of Rheumatic and Musculoskeletal Medicine,

2nd Floor Chapel Allerton Hospital, Chapeltown Rd,

Leeds, LS7 4SA, UK

Phone: +44 (0)113 3924883

Fax: +44 (0)113 3924991

Email: E.M.A.Hensor@leeds.ac.uk

Online Resource 2 Supplementary Results: Tables S1-S2 & Figure S1

Table S1. Reliability estimates for SPADI scores

SPADI score	Standard error of measurement (SEM)	Smallest detectable change (SDC)	Smallest detectable difference (SDD)
Total	3.5	12.9	9.1
Pain	5.3	14.4	10.2
Disability	5.2	12.2	8.6

SPADI = shoulder pain and disability index

Table S2. Variability in PASS cut-offs at 6 months (n=304)

Baseline score		75 th percentile method					ROC method				
SPADI total	Range (native)	Cut-off (native)	Sensitivity (95% CI)	Specificity (95% CI)	PPV (95% CI)	NPV (95% CI)	Cut-off (native)	Sensitivity (95% CI)	Specificity (95% CI)	PPV (95% CI)	NPV (95% CI)
Tertile 1	0-47.9 (0-43.8)	39.4 (16.2)	76 (64, 85)	82 (63, 94)	91 (81, 97)	58 (41, 73)	40.6 (18.5)	80 (69, 89)	79 (59, 92)	90 (80, 96)	61 (44, 77)
Tertile 2	48-53.6 (44.6-65.4)	47.4 (41.5)	78 (68, 87)	65 (44, 83)	87 (76, 94)	52 (34, 69)	42.5 (23.1)	57 (45, 69)	100 (87, 100)	100 (92, 100)	45 (32, 59)
Tertile 3	53.9-78.1 (66.2-96.2)	49.2 (50.0)	75 (60, 86)	90 (79, 96)	86 (72, 95)	81 (69, 90)	50.3 (54.6)	79 (65, 90)	88 (76, 95)	84 (71, 94)	83 (72, 92)
SPADI pain	Range	Cut-off	Sensitivity	Specificity	PPV	NPV	Cut-off	Sensitivity	Specificity	PPV	NPV
Tertile 1	0-43.3 (0-56.0)	36.7 (34.0)	76 (64, 85)	83 (63, 95)	93 (84, 98)	53 (36, 69)	33.5 (24.0)	72 (60, 82)	92 (73, 99)	96 (88, 100)	51 (36, 67)
Tertile 2	43.5-49.2 (58.0-72.0)	40.3 (46.0)	75 (63, 85)	71 (51, 87)	86 (75, 94)	54 (37, 71)	36.7 (34.0)	63 (51, 75)	93 (77, 99)	96 (85, 100)	51 (37, 65)
Tertile 3	50.4-78.0 (74.0-94.0)	46.4 (66.0)	77 (63, 87)	85 (73, 93)	81 (67, 91)	81 (69, 90)	43.5 (58.0)	73 (58, 84)	92 (81, 97)	88 (74, 96)	79 (68, 88)
SPADI disability	Range	Cut-off	Sensitivity	Specificity	PPV	NPV	Cut-off	Sensitivity	Specificity	PPV	NPV
Tertile 1	0-42.6 (0-35.0)	25.1 (7.5)	75 (64, 84)	72 (51, 88)	89 (79, 96)	49 (32, 66)	33.0 (15.0)	87 (77, 94)	68 (47, 85)	89 (80, 95)	63 (42, 81)
Tertile 2	43.0-51.0 (36.3-61.3)	43.4 (37.5)	78 (66, 87)	61 (42, 78)	81 (70, 90)	56 (38, 73)	44.2 (40.0)	85 (74, 93)	61 (42, 78)	83 (72, 91)	66 (46, 82)
Tertile 3	51.5-78.5 (62.5-95.0)	46.8 (48.8)	76 (62, 87)	86 (73, 94)	83 (69, 92)	80 (67, 89)	47.2 (50.0)	82 (69, 91)	86 (73, 94)	84 (70, 93)	84 (72, 92)

CI= confidence interval; NPV = negative predictive value; PPV = positive predictive value; ROC=receiver operating characteristic; SPADI = shoulder pain and disability index
Ranges and cut-offs have been presented on both the Rasch-transformed scale, and the native ordinal scale, to illustrate the difference.

Figure S1. The relationship between native-scaled SPADI and Rasch-transformed SPADI a) total b) pain c) disability scores

Figure S1 shows the comparisons from left to right (SPADI total, pain and disability scores) between the original SPADI score (X-axis) and the Rasch-transformed equivalent (y-axis).

