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Development and psychometric testing of a British English version of the Disabilities Arm Shoulder and Hand Questionnaire

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Background:

The DASH (developed in Canada) is a widely used outcome measure for upper limb conditions, consisting of 30 items: 21 regarding daily activity and 9 regarding impact of condition. The aim of this study was to develop a British English DASH and psychometrically test it in a UK population of people with rheumatoid arthritis (RA).

Methods:

The Institute of Work and Health (IWH) cross-cultural adaptation methods were followed: forward translation to British English; synthesis; expert review of equivalence and cognitive debriefing. Psychometric testing included internal consistency (Cronbach's alpha); test-retest reliability (ICC(2,1), and concurrent validity (Pearson/Spearman Correlations). Adults with RA were recruited from 17 Rheumatology out-patient departments, who completed two test booklets three weeks apart, including the DASH, Health Assessment Questionnaire (HAQ20), SF36v2 and numeric rating scales for disease activity, hand pain, general pain and fatigue.

Results:

During translation and equivalence review, changes to use plain English and British English terminology were made (eg "do" not "perform"; "jumper" rather than "pullover sweater"). 31 people with RA were interviewed (age=63.42 (SD12.04) years, RA duration= 15.71(SD12.61) years). All DASH items were considered understandable and relevant. 340 completed the test 1 booklet: 251 women, 89 men; mean age = 62 (SD12); RA duration=14.44 (SD11.73); average pain score = 5 (IQR 2-7) and 273 completed the re-test. Reliability was good: alpha =0.98; ICC(2,1) = 0.98 (95% CI 0.97, 0.98). Linear weighted kappa coefficients were mostly good (i.e. 0.61 - 0.77) for the activity items (Q1-21), although one (Q17) was marginally lower at 0.58. Coefficients for the symptom/self-image items (Q22-30) were generally lower and mostly moderate, ranging from 0.50 - 0.66. DASH concurrent validity was strong: HAQ20 $r_s = 0.91$; SF36v2 Physical Function $r = -0.84$; SF36v2 Bodily Pain $r = -0.71$; hand pain $r = 0.75$; pain $r = 0.70$; fatigue $r = 0.64$. The DASH discriminated between good, moderate and poor self-reported disease activity ($p = 0.001$). The MDC₉₅ DASH score = 9.26. There were no floor and ceiling effects.

Conclusion: The British English version of the DASH required some modifications, but then was deemed appropriate by people with RA in the UK. It had good reliability and validity. A British English DASH is available for the first time. Results were comparable to DASH studies in RA in other countries.

