

VAM20 Poster: 274: Manual Ability in Hand Surgery Patients: Validation of the ABILHAND Scale in Four Diagnostic Groups

Category: Clinical Research

Level of Evidence: 3

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HYPOTHESIS

Hand surgery (HS) outcomes are measured to assess treatment results, complication risks and intervention reliability. Quantitative analysis of functional recovery requires a unidimensional, linear scale. The goal of this study was to adapt the ABILHAND questionnaire through Rasch analysis for use specifically in HS patients and to examine the validity of the resultant instrument.

METHODS

A preliminary 90-item questionnaire was presented to 216 patients representing the diagnoses most frequently encountered in HS, including distal radius fracture (n=74), basal thumb arthritis (n=66), carpal tunnel syndrome (n=53), and heavy wrist surgery (n=23). Patients were assessed during the early recovery and in the late follow-up period (0-3 months, 3-6 months and >6 months), leading to a total of 305 assessments. They rated their perceived difficulty with queried activities as impossible, difficult, or easy. Responses were analyzed using the RUMM2030 software. Items were refined based on item-patient targeting, fit statistics, differential item functioning, local independence and item redundancy. Patients also completed the QuickDASH, 12-item Short Form Survey (SF-12) and a numerical pain scale.

RESULTS

The rating scale Rasch model was used to select 23 mostly bimanual items on a 3-level scale, which constitute a unidimensional, linear measure of manual ability with good reliability across all included diagnostic groups (Person-Separation Index = 0.90). The resulting scale was found to be invariant across demographic and clinical subgroups and over time. ABILHAND-HS patient measures correlated significantly ($p < 0.001$) with the QuickDASH ($r = -0.77$), SF-12 Physical Component Summary ($r = 0.56$), SF-12 Mental Component Summary ($r = 0.31$), and pain scale ($r = -0.49$).

SUMMARY

- ABILHAND-HS was developed using the Rasch methodology as a unidimensional and linear scale.
- ABILHAND-HS is a robust person-centered measure of manual ability in HS patients.
- ABILHAND-HS measures correlate with the QuickDASH, SF-12 and pain scale.

