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Rasch Analysis of the Hospital Anxiety and Depression Scale in Psoriatic Arthritis: Results from the PRESTA Study.

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Background/Purpose

The Hospital Anxiety and Depression Scale (HADS) is a generic measure of psychological status comprising anxiety and depression subscales. The aim of this study was to assess the psychometric properties of HADS in psoriatic arthritis (PsA), to calibrate the scale, and to provide interval-level scale for use in parametric analyses when required.

Methods

We used HADS data from patients with PsA recruited in PRESTA trial. [1] The data was subjected to Rasch analysis to determine fit to the Rasch model (implying construct validity and unidimensionality), reliability and targeting in subjects with PsA.

Results

The number of evaluable subjects was 740 at baseline, 701 at week 12, and 653 at week 24. Both the anxiety subscale and the depression subscale satisfied the expectation of the Rasch model (table 1). The overall scale was shown to fit the Rasch model (item-by-severity interaction Chi-Square = 15.878, p = 0.601) and had excellent reliability (person separation index = 0.888). Validity and reliability of HADS were confirmed at baseline and both follow-up visits.

Figure 1 presents person location relative to all items (logarithmically transformed scores) along the same scale (logits). The top plot representing 'persons severity'; those with higher scores (impaired psychological status) on the right of the scale and those with lower scores (better psychological status) on the left. The bottom plot presents relative 'difficulty' of the items. HADS appears to be well targeted across all 'severity' levels, providing for calibration of the scale by transforming raw scores into interval-level (Rasch-transformed) scores.

Conclusions

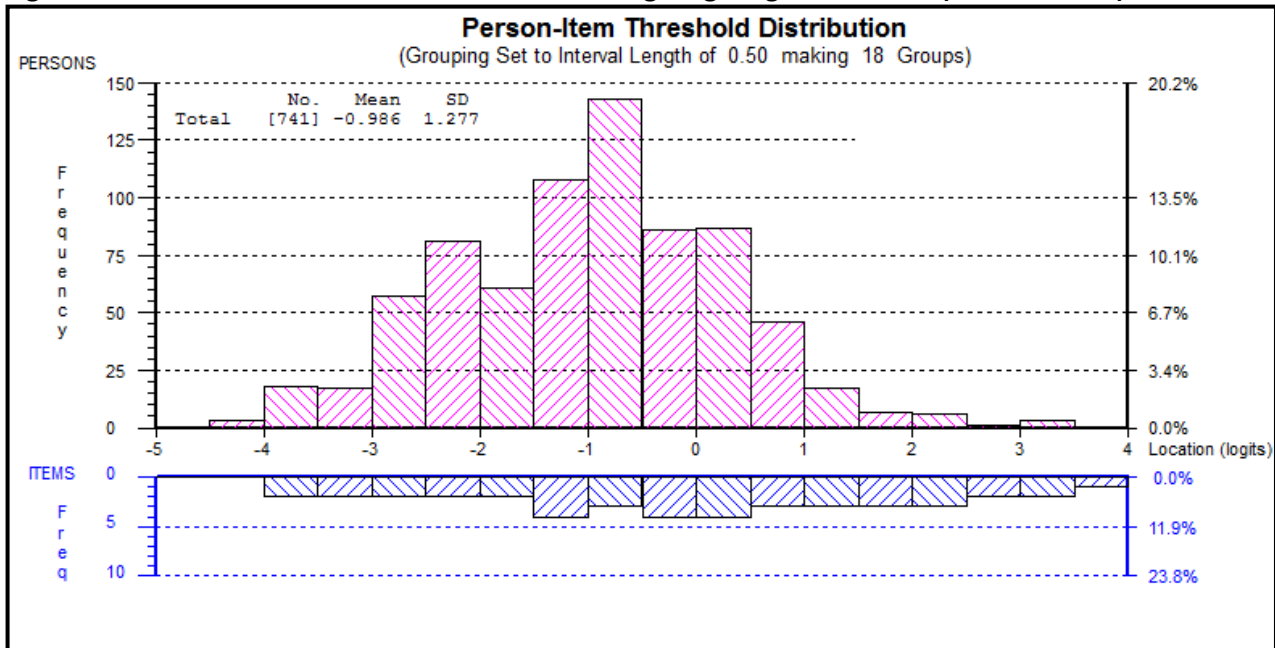
The validity and reliability of the HADS are confirmed in PsA and continues to be a useful psychological status instrument to use in PsA clinical studies. Raw scores can be Rasch-transformed into interval scores for use alongside other outcomes in parametric analyses.

Table 1: Fit Statistics for the Anxiety and Depression Subscales in PsA (Baseline).

Subscale	Location	SE	Item Fit Residuals	Chi-Square	DF	p-value
Anxiety	-0.120	0.021	-0.074	6.494	9	0.690
Depression	0.120	0.022	0.356	9.384	9	0.403

SE, Standard error; DF, Degrees of freedom, Non-significant p-value for Chi-Square suggests fit to Rasch model

Figure 1: Person-item Threshold Distribution Showing Targeting of the HADS (Baseline Data)



Reference

1. Sterry W, et al. Comparison of two etanercept regimens for treatment of psoriasis and psoriatic arthritis: PRESTA randomised double blind multicentre trial. *BMJ* 2010;340(c147)