Developing the Korean Educational Needs Assessment Tool (Korean-ENAT) in Rheumatoid Arthritis: a Cross-cultural Validation using Rasch Analysis

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Background

The Educational Needs Assessment Tool (ENAT) is a 39-item patient-completed questionnaire designed to help patients identify and prioritize their educational needs. It was originally developed in the UK and validated in 7 rheumatic diseases including rheumatoid arthritis (RA).[1]

Objectives

This study aimed to undertake cross-cultural adaptation and validation of the ENAT in RA for use in Korea.

Methods

The study involved two main phases: (1) Cross-cultural adaptation of the ENAT from English into Korean and (2) validation of the Korean-ENAT. The first phase followed an established process of cross-cultural adaptation of self-report measures.[2] For the second phase, patients with RA completed the Korean-ENAT at the outpatient clinic of a university hospital and Rasch measurement computer program, WINSTEPS, was used to analyze the data. Fit to the model was determined by the observed data Infit and Outfit statistics (≥0.50 and ≤1.50); where a value of 1.00 suggests a perfect fit to the model expectations. The unidimensionality of the scale was determined by item (and person) separation index ≥2.00 and reliability ≥0.80.

Results

An adequate conceptual equivalence was achieved following the adaptation process. A total of 123 patients completed the Korean-ENAT. Their mean ± SD age was 46.7±12.3, disease duration 53.7±71.2 months and the majority (81.3%) were female. Thirty-five of the 39 items displayed good fit to the model. The 4 items deviating from the model had Infit and Outfit >1.50. The item separation index (5.26) and item reliability index (0.97) provided evidence for good reliability of items. All the 7 domains of the Korean-ENAT were found to fit the Rasch model. The internal

consistency of the Korean-ENAT was high and unidimensionality was confirmed (Person separation index =3.41 reliability index =0.92; item separation index =16.82 and reliability index =1.00).

Table 1. Fit statistics for the Korean ENAT subscales

	Infit		Outfit		Point-biserical correlation
Subscales	MNSQ	ZSTD	MNSQ	ZSTD	PTMEA CORR.
Pain	1.31	2.30	1.40	2.80	0.75
Movement	1.00	0.10	1.01	0.10	0.85
Feelings	0.77	-1.90	0.80	-1.60	0.84
Disease	1.27	2.00	1.15	1.00	0.84
Treatments	1.30	2.20	1.21	1.40	0.85
Self-help	1.05	0.50	1.08	0.70	0.84
Support	0.75	-2.10	0.75	-2.10	0.83

MNSQ= mean-square; ZSTD = z-standardized; MNSQ between ≥0.50 and ≤1.50 for model fit.

Conclusions: Using a standard process in cross-cultural adaptation, the ENAT was adapted into Korean and Rasch analysis confirmed that the construct validity, reliability, and unidimensionality of the Korean-ENAT. The Korean-ENAT provides valid and reliable estimates of educational needs of people with RA in Korea.

References

1. Ndosi M, et al. Validation of the educational needs assessment tool as a generic instrument for rheumatic diseases in seven European countries. Ann Rheum Dis 2014; 73: 2122–9.

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Citation information