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

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

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


Citation information