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## Title

Adaptation and validation of the Education Needs Assessment Tool into Polish: a cross sectional, tool validation study

## Authorship

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## Background

The Educational Needs Assessment Tool (ENAT) is a self-completed questionnaire developed in the UK to measure educational needs of patients with rheumatic diseases.

## Objectives

The aim of this study was to adapt the ENAT for use with people with RA and Ssc in Poland (Pol-ENAT).

## Methods

The adaptation into Polish followed the Beaton's cross-cultural adaptation process: (I) forward translations (T1 and T2) were carried out by two bilingual translators whose mother tongue was Polish (II) synthesis of the translations was carried out by the forward translators and the recording observer producing T12 from which back-translations were carried out (III) back translations (BT1 and BT2) were carried out by two other bilingual translators whose mother tongues were English (IV) the expert committee meeting took place to review the translations (V) the pre-final Pol-ENAT was tested on 30 patients with arthritis. Following the adaptation, 278 patients with RA and SSC completed the Pol-ENATs. The data was then subjected to Rasch analysis to assess the construct validity and reliability of the translated tool.

## Results

Issues around translation included: multiple meanings of certain concepts, grammatical difficulties and following it inexactness, idiomatic expressions as well as differences in style of questionnaire form used in United Kingdom and Poland. Experts solved all above problems by finding Polish equivalents, which would be understandable but also adequate from a medical point of view. Regarding vocabulary uncertainties, translators tried to grasp the whole scope of meanings of a

given word and search for some use in context appeared very useful. The Expert Committee believes that the aim of proposing an exact Polish version of the English questionnaire has been achieved.

The dataset for validation comprised 278 patients with RA and SSC (145 and 133 respectively), 237 (85.3%) of which were female. Table 1 summarises patient characteristics and the summary results of Rasch analysis. The 7 domains in the Pol-ENAT formed an unidimensional scale which was found to fit the Rasch model indicating a criterion-related construct validity,  $\chi^2(df) = 9.82(7)$ ,  $p = 0.20$  and  $4.20(7)$ ,  $p = 0.76$  for RA and SSc groups respectively. The reliability (PSI) exceeded .85 which the requirement for individual use. Pol-ENAT was invariant to age, gender, disease duration and education background.

## Conclusion

Using Beaton's process ensured equivalence between the original and the Polish ENAT, maintaining its content validity across the two cultures. Fit to the Rasch model, confirmed that internal consistency, validity and reliability were retained. Pol-ENAT can be used with confidence in assessing the educational needs of patients with RA and SSc.

**Table 1**

	Sample size	Gender	Age	Disease duration	Educational background	Chi Square Interaction		PSI
	N	Female (%)	Mean (SD)	Mean (SD)	% Only basic education	Value (df)	p	
<b>RA</b>	145	119 (82.1)	52.8 (13.0)	13.4 (9.8)	14 (9.7)	9.819 (7)	0.199	0.868
<b>SSc</b>	133	118 (88.7)	53.9 (14.3)	10.8 (10.3)	14 (10.5)	4.204 (7)	0.756	0.943
<b>Total</b>	278	237 (85.3)	53.3 (13.6)	12.2 (10.1)	28 (10.1)			

SD = Standard deviation, df = Degrees of freedom, P =  $\chi^2$  interaction probability, (non-significant P = Fit to Rasch model), PSI = Person separation index reliability.

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