Reviewer’s report

Title: Cross-cultural validation of the Educational Needs Assessment Tool in RA in 7 European countries

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Reviewer: Åsa Lundgren-Nilsson

Reviewer’s report:

This article describes the use of Rasch analysis to assess the Educational Needs Assessment Tool in RA and the cross-cultural DIF across 7 European countries. The study has a potential important contribution to furthering our understanding of the psychometric properties of the scale, particularly given its use in cross-cultural studies.

Although the study appears to be worthwhile, the paper would require a major rewrite before it becomes acceptable for publication. The logic order of the analysis is poor, new results in the discussion. Data supporting the analysis within countries is missing. All this makes it hard for readers to judge the findings.

Suggestions to improve the manuscript can be found below:

Authors:
Minor Essential Revisions
The order and names of authors in the attached file and on the website is not the same. Which are the correct names and order?

Abstract:
This will need to be rewritten after the revision of the paper.

Background:
Minor Essential Revisions
The last sentence in the first paragraph is hard to understand: Do you mean that the improvement in QoL depends on patients’ willingness to undertake self-care activities? If so please explain this more.

Third paragraph needs some more details on how the ENAT is supposed to used. Is a sum score for all the 39 items used or are the domains summed separately? Give max and min for the scale. How would scores be interpreted? Please give reference for the first study with 20 patients.

Methods:
Minor Essential Revisions
Statistical analysis: The basis of Rasch analysis can be shortened and references given to previous published papers using Rasch analysis. The reference to the original paper by Georg Rasch is wrong the correct one is: Rasch G. Probabilistic models for some intelligence and attainments tests.


Major Compulsory Revisions

In the analytic strategy add overall fit statistics as 1). Analysis of each country must first be performed following the analytic strategy before pooling of data can be done. This must be clearly described and followed. The Person Separation Index (PSI) is not equivalent to Cronbach’s alpha but can be interpreted in the same way. The DIF analysis is only described for testlets on pooled data. DIF analysis has to be firstly performed within countries before it can be done with pooled data. Please revise this part.

Results:
Major Compulsory Revisions
Start with the analysis of each country. Give the results for fit, thresholds, DIF and unidimensionality. This will also give you information for your pooled analysis.

DIF by age, gender, education and disease duration is stated to be likely to cancel out but this has to be proven. Please provide this or revised your conclusion.

The reason for disregarding disorder thresholds is not supported in the methods. Were thresholds disordered in the country specific analyses as well?

Calibration of the ENAT into interval scale: In this process it is important that you have the full score range of instrument in your dataset before you rescore. Was this the case?

Discussion:
Major Compulsory Revisions
First part in the discussion is results.
First discuss the results that are most important to you following the aim of this paper, cross-cultural validation. What was the difference between countries, do you have an idea why, can this be supported? Then address questions like local dependency and clinical use.

In the end of paragraph three you talk about DIF by age, this is a new result and should be in the result section.

Conclusion:
Major Compulsory Revisions
Here it should be made clear that in the present format the ENAT can not be used in cross-cultural studies unless DIF is taken into account. It is not proven if the ENAT works in the same way for different ages, educational levels. This is also of importance in the clinic.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I have no competing interests