Reviewer’s report

Title: Use of a “critical difference” statistical criterion improves the predictive utility of the Health Assessment Questionnaire-Disability Index score in patients with rheumatoid arthritis

Version: 0 Date: 26 Jun 2019

Reviewer: Romualdo Ramos

Reviewer's report:

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Thank you for this interesting paper on the HAQ, an extensively used tool in Rheumatology, of which there is still plenty to elucidate.

I clearly see the potential of this manuscript, but it may need some revision before being considered for publication (estimated revision level: Medium)

1) On a side note: The title could be shorter. There is too much wording and one of the key concepts (critical difference) is substituted by "criterion". 

2) How was "change in pain" operationalized? Most importantly, the authors argue that "change in pain was the most important predictor of HAQ-DI improvement during the first 6 months of therapy", yet the study is set to "improve the predictive utility of the HAQ-DI". The authors need to make a clear statement in terms of causality regarding the results.

3) The authors argue that "HAQ-DI-dcrit" is a more reliable assessment of functional improvement than currently used MCID values. As I understand it, HAQ-DI-dcrit is not an assessment per se, but a critical value or threshold.

4) There seem to be some inconsistencies in terms of statistics. The authors say that patients with HAQ less than 0.5 and DAS less than 3.2 were excluded, but the means and SD in the results show another story (HAQ M=1.1 (0.72); DAS M=4.4 (1.6))

5) The rationale behind the hierarchical regression needs to be addressed. Commonly, one would first enter the demographics variables in the model, then any known associations derived from literature, and finally the outcome variable of interest. As it has been presented in Table 4, variables are simply ordered based on the percentage of variance they explain. However, it is not clear which variables were controlled for which relationship.
6) The authors may want to delve into the Lienertz and Raatz approach a little bit. It is still not 100% clear how the critical difference was calculated. What was the rationale behind a one-sided 5% value (instead of two-sided)?

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Unable to assess

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No

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Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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