Author's response to reviews

Title: Imputation by the mean score should be avoided when validating a Patient Reported Outcomes questionnaire by a Rasch model in presence of informative missing data

Authors:

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Author's response to reviews: see over
Reviewer's report
Title: Imputation by the mean score should be avoided when validating a Patient Reported Outcomes questionnaire by a Rasch model in presence of informative missing data
Version: 2 Date: 20 January 2011
Reviewer: Paul De Boeck
Reviewer's report:
Minor essential revisions:
- On p. 13 the term "random effect" is used. Commonly, the term refers to random intercepts, random slopes, etc. The Rasch model is a random intercept model. What the authors actually mean is a "random process" in the generation of imputed values.
We agree with the reviewer and we had replaced “random effect” by “random process”

- On p. 15 it is said that NOIMP and LD are likelihood-based methods, in contradiction with the definition on p. 10 and with Table 1. This contradiction had been deleted in several parts of the Discussion (pages 15-17)

Discretionary Revisions:
- Perhaps the authors can stress in a better way that the measures they chose (studied parameters) are motivated by the their research interest in comparing groups with different treatments.
We have added in the revised version of the manuscript that the studied parameters were chosen because they are the most important parameters for validating a Rasch model (introduction page 4). These parameters are important in a validation step, and there are not the more important parameters in the context of the comparison of several groups.

- Perhaps the authors can try to explain why NOIMP works so well.
Three sentences have been added in discussion (pages 16-17)

- I don't think it is difficult to explain the relationship between H and PSI (see one of the responses on my question about relationships between tables).
The H coefficients are based on the Guttman errors or on the covariances between the items.
The PSI is based on the estimation of the variance of the latent trait and on standard errors of the individual values of the latent trait. These latter values depend mainly on the number of items, and on the difficulty parameters.
As a matter of fact, the link between these two coefficients does not seem straightforward to us even if the simulations presented in this paper showed that these two coefficients have close variations.

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Acceptable
Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:
I declare that I have no competing interests.
1. In addition to the comments above, we asked Referee 1 to assess your responses to the second reviewer, who was unavailable to provide a report. Referee 1 provided the following critique and request:

"The revision is a small step forwards in the direction of the other reviewer, for example because now MNAR is given more attention, but it is basically still a rather ad hoc simulation study without profound statistical theory. Therefore I would expect that the other reviewer would still judge it as of limited relevance. I believe it is an issue of the journal policy whether or not to accept this kind of manuscript. In the category of applied statistical research in the IRT domain I find it a reasonable manuscript.

"I would request from the authors that they explain in the introduction how a simulation study can contribute beyond what we know from statistical theory. And why applied researchers may find simulation results useful instead of relying exclusively on what is known from statistical theory."

The sentences “All these investigations were carried out using a simulation study. Such studies can contribute to give more insight from what is known from statistical theory that often provides asymptotic results. Indeed, simulations can be used to reflect real-life situations encountered in practice that can be of interest to applied researchers (various sample sizes, number of items...). Furthermore, simulation studies can help assessing the suitability and precision of different statistical models and in particular the bias in the parameter estimates in relation to a known simulated truth." have been added in the introduction (page 4).

2. Please add some context information in the Background section of your abstract. For more information on how to write your abstract, please see http://www.biomedcentral.com/bmcmedresmethodol/ifora/#abstract

The abstract has been revised