Reviewer’s report

Title: Item response models for the longitudinal analysis of health-related quality of life in cancer clinical trials

Version: 1 Date: 31 Jul 2017

Reviewer: Tianmeng Lyu

Reviewer's report:

Most of the previous comments have been addressed and please see the following minor comments:

1. In page 4, line 52, the subscript of the last element in the definition of $\pi^{(j)}_{iv}$ should be $M_j$ instead of $M$, right?

2. In page 6, line 45-49, it mentions the symptomatic dimensions and functional dimensions, but the introduction of these two different dimensions were deleted in the introduction. I agree that the introduction section should be shortened, but one sentence introducing the two dimensions could be kept if the concepts are used here.

3. In page 8, line 12, a space is missing between "estimation" and "difficult".

4. In page 8 and page 9, equations (9) and (10) are exactly the same as equations (7) and (8)?

5. In page 9, line 51, "r=1" should be "a=1" under the new notation?

6. The column name of the last column in table 2 and the column name of the first column in table 3 still use "r" to denote the number of random effects.

7. In page 9, line 51, is the "capacity parameter $\theta$" the same as the "latent variable $\theta$" in equation (1)? If so, it would be better if using the same name for $\theta$.

8. In page 10, line 11, "previsou" should be "previous".

9. In page 11, line 46, superscript "l" is missing for $\kappa_{sy_{i0}}$?

10. In page 11, line 56, "… in different given scenarios (Table 1)". Table 1 is the summary of the characteristics of the three model families, not for the simulation scenarios, so why to refer to Table 1 here?

11. In the title of Table 4, "$\sigma_0^2=1.5$" is written twice.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?
If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal