Reviewer's report

Title: Assessment and application of the Chinese Resident Health Literacy Scale using item response theory: a population-based sample in south China

Version: 2
Date: 5 May 2015

Reviewer: Nicola Diviani

Reviewer's report:

Thank you for the opportunity to review the manuscript “Assessment and application of the Chinese Resident Health Literacy Scale using item response theory: a population-based sample in south China”. The manuscript describes the validation of a health literacy scale that had been used in a national health literacy survey in 2012 but had not previously been validated.

As validated measures of population health literacy in China are missing, I welcome the authors’ effort to validate the scale. I am sure this will also add to the growing body of evidence on the concept of health literacy and on its measurement (also beyond China). Additionally, being health literacy a set of skills of different difficulty, I find the choice of item response theory in addition to classical test theory particularly sound and relevant in this context.

I think the topic addressed is relevant for BMC Public Health. However, I have a number of comments that I feel could contribute to improving the overall quality of the manuscript.

- Major Compulsory Revisions

1. Methods/Participants: the sampling strategy is not very clear. The authors could simplify the description and add a figure or diagram to illustrate the sampling process.

2. Methods/Study design: it would be interesting to have some examples of the 4 different types of questions and of questions in the six different domains.

3. Methods/Statistical analyses: References are missing on the different analyses conducted (particularly as regards the thresholds).

4. Results: Report alpha for the three dimensions

5. Results: More detailed information is needed on the reasons why items were removed from the scale.

6. Discussion: The first part of the discussion could be more informative (e.g., clearly repeating the aims of the study and summarizing the main steps undertaken in this context).

7. Discussion: The part about IRT belongs to the methods section. Here the authors should only summarize it.

8. Discussion: The authors should discuss the implication of their results (e.g.,
the fact that some items were dropped) for the results of the 2012 survey. For instance, would having used the validated version of the scale have changed the main conclusions of the survey?

- Minor Essential Revisions

9. Language needs careful editing. There are several (too) long sentences and a number of grammatical mistakes (e.g., “the scale have” instead of “has”) and typos (e.g., CAF instead of CFA). I suggest the authors have the manuscript checked edited by an English native speaker.

- Discretionary Revisions

10. Title: I suggest to replace the “:” with “in” for better clarity.
11. Table 1 and 3: Replace “Illiteracy” with “No formal education”.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.