Author’s response to reviews

Title: Psychometric evaluation of an interview-administered version of the WHOQOL-BREF questionnaire for use in a cross-sectional study of a rural district in Bangladesh: An application of Rasch analysis

Authors:

Mohammed Uddin (mnuddin@swin.edu.au)
Fakir Islam (fislam@swin.edu.au)

Version: 1 Date: 20 Feb 2019

Author’s response to reviews:

20th February 2019

To

Vassilis Aletras, PhD
BMC Health Services Research

Sub: Submission of the revised manuscript BHSR-D-18-02412

Dear Vassilis Aletras,

We are pleased to inform you that our research study entitled “Psychometric evaluation of an interview-administered version of the WHOQOL-BREF questionnaire for use in a cross-sectional study of a rural district in Bangladesh: An application of Rasch analysis” have been revised according to reviewers’ and editor comments. We try to do our best effort to address each comments of the reviewers precisely and accurately. Response to reviewers’ and editor comments are mention after each comment.
We strongly believe and hope that BMC Health Services Research would be interested in publishing our works. We also confirm that this paper has not been previously published or not considered for publication elsewhere.

We look forward to hearing from you soon.

Sincerely yours,

Mohammed Nazim Uddin

Department of Statistics, Data Science and Epidemiology;
Faculty of Health, Arts and Design;
Swinburne University of Technology,
Hawthorn, VIC 3122, Australia

Editor Comments:

Please address all comments by both reviewers.

In addition:

1. You should exploit more Reference No. 20 (Zeldenryk et al) since this has examined whether items of WHOQOL-BREF are understood etc. in Bangladesh. Hence its findings should be compared with yours to see similarities and possible explanations for the misfit that you found for certain items. The two samples come from rural areas and you should comment also on similarities or differences in your samples.

Response: Thanks for your comments. We have carefully compared the two studies. Firstly, the Zeldenryk et al. study had a smaller sample size (sample size of 35) than ours (sample size of 2425), and was conducted in a poor, illiterate community with specific diseases (lymphatic filariasis) which was quite different from our underlying population with diverse professions and socio-economic conditions. Therefore, comparison of these two studies should be done with caution due to differential sample size and population characteristics. Secondly, Zeldenryk et al. study mentioned 22 of the 26 questions in the tool were found to be problematic and the study had raised multiple issues like the translation, wording and conceptual difficulties. the authors discussed in their protocol paper (Uddin, Bhar et al. 2017) how a back translating technique was used to translate the questionnaire into Bengali language and to express some difficult-to-
understand phrases/sentences in Narail district dialect for better comprehension of the overall questionnaire by the participants. Moreover, we administered a pilot test of the questionnaire, as well as focus group discussion to gauge the level of perception of the respondents about the questionnaire. Feedback from the pilot test and focus group discussion resulted in some changes in the keywords of the questionnaire, which resolved some cultural and linguistic issues. In our study, we had mentioned only seven items as problematic, which fairly aligned with that found in Zeldenryk et al. study. We strongly believe that wording or conceptual issues did not attribute to the misfit of the items in our model etc., but rather infrastructure development could play a role, which was evident in the rural setting of Bangladesh. More importantly, as we deemed Rasch analysis an important tool for validating the current questionnaire and analysed the data using Rasch model, some items had to be excluded due to their non-compliance with the strict assumptions of Rasch model preserving the psychometric properties of the scale. We have added more words in the discussion section to highlights the differences between the studies (Discussion section, line 410-417, page 23). Moreover, less critical differences associated with sample size etc. have been addressed in the background section (Background, line 95-99, page 5-6).

2. There are some language problems in the text. The text should be carefully checked and corrected.

Response: Thanks for your comments. We have utilised an editorial service (from experteditor.com.au) to correct the grammatical mistakes and improve the overall write-up. Moreover, a native English-speaking colleague also checked the manuscript, and suggested some changes, which have been incorporated through ‘track changes’.

3. Notice finally that you mention 300 samples. This might be taken to imply that you used 300 samples when in fact you mean a sample (or 5 samples) each of which has 300 observations. Please rephrase.

Response: Thanks for your comments. We have rephrased the sentence in our paper (Method section, line 122-124, page 7 “Analysis was undertaken five times with five different random sub-samples, each of which was comprised of 300 participants, that were randomly selected from the total sample of 2425 participants”
BMC Health Services Research operates a policy of open peer review, which means that you will be able to see the names of the reviewers who provided the reports via the online peer review system. We encourage you to also view the reports there, via the action links on the left-hand side of the page, to see the names of the reviewers.

Reviewer reports:

Tatjana M. Gazibara (Reviewer 1): This study used the Rasch analytic approach to assess the psychometric properties of the WHOQOL-BREF questionnaire for the first time in the rural population of Bangladesh in Bengali language. This study is relevant and important and the manuscript is well-written. Overall, results need more discussion as to what are the alternatives to the excluded items, particularly in social domain, as one of core aspects of life in good health. Specifically, because of metric inadequacies, what are possible solutions for preserving the original questionnaire structure to enable cross-cultural uses of dataset in Bengali?

Response. Thanks for your comments. The Social domain fulfilled all the assumptions of the Rasch model except reliability. However, earlier researches reported on the social domain were quite flexible on PSI values because of their less number of items. It is well grounded in the statistical literature that, if the Cronbach's alpha (CA) value is less than 0.70, reliability would be reported as problematic. However, in our study, we found the CA very close to 0.70. Although the domain is not a perfect fit, we can assume that it is a reasonable fit. We have changed wordings in our abstract and in the text to ‘reasonably fit’. Our study has provided an avenue for further research to incorporate suitable questions to measure for social domain, which is beyond the scope of the current study. The data has already been collected and analysed, so we will explore these suggested avenues in our future research. To conclude, future research is required to solidify the causal factors for the exclusion of some items and their possible protection in the original format of the WHOQOL-BREF questionnaire.

Specific comments:

Abstract, Conclusion paragraph: "The WHOQOL-BREF Bangla version.." please check if Bangla is correct, or should it be Bengali version?

Response: Thanks for your comment. As far as languages are concerned, the words ‘Bengali’ and ‘Bangla’ are synonymous. The word ‘Bengali’ is used internationally at least by English speakers and in English literature. However, when the native speakers of this language refer to it,
they use the word ‘Bangla’. For convince sake where the term “Bengali” has been used throughout the paper.

Body of the manuscript

1. When quoting other resources please add page where this particular text can be found next to the reference number.

Response: Thanks for your comments. We have included the page numbers in the references when quoting other resources.

2. Sentences should not start with abbreviations. Please correct throughout the manuscript.

Response: Thanks for your comments. All abbreviations have been checked to ensure that they have been spelled out at the first appearances, and sentences do not start with abbreviations.

3. Part "it was difficult to obtain information about QOL from the respondents" appears not to be a good fit for the entire sentence. Please correct.

Response: The sentence has been rephrased in the manuscript (background section, line 67-68, page 4)

3. The sentence "The WHOQOL-BREF contains 26 items: two items, one from the overall QOL and one item from the satisfaction of health. In addition, …" should be reworded in such a way that the authors first describe the 24 items forming 4 domains and thereafter to describe 2 items not included in domains.

Response: The sentence has been improved as you suggested (WHOQOL-BREF questionnaire, line 140-144, page 7)
4. Please add the pattern of scoring for The WHOQOL-BREF.

Response: Thanks for the comment. We have added the scale of scoring the items for the WHOQOL-BREF questionnaire (line 149-152, page 8) in the section WHOQOL-BREF questionnaire.

6. Why were adults aged 60-64 categorized as older adults, when it is generally accepted that people aged 65 and above are classified as "older persons"? Please provide reference to support your claim.

Response: Thanks for raising this excellent point. In Bangladesh, population of age 60 and above are typically classified as ‘elderly’ (Barikdar, Ahmed et al. 2016). Moreover as the retirement age of Bangladesh is 59 (https://tradingeconomics.com/bangladesh/retirement-age), older adults were classified into the age group 60-64 in our study. It is also important to note that the definition and age group of older adults may vary between developing (Bangladesh is considered as a developing country) and developed countries. See https://www.who.int/healthinfo/survey/ageingdefnolder/en/ for a detailed explanation of the variation of the construct ‘older adults’ in different parts of the world.

7. Please spell out M and SD, as well as PSI when used for the first time.

Response: Thanks for raising this issue. All the abbreviating have been spelled out throughout the manuscripts when first used (including M. SD and PSI)

8. Social domain indeed was the weakest subscale in this research. This is likely due to socio-cultural norms and no. of missing responses (quite likely due to person-to-person interview which is not the most convenient mode of data collection on personal and intimate aspects). But also, this scale is composed of less no. of items compared to the other three domains, and it is well-established that less items in one domain decrease the values of Cronbach's alpha i.e. internal consistency. I suggest that the authors propose how to bridge this gap in social domain for Bengali speaking population other than omitting these items. For example, what could be substitute items when a person does not respond to the original items, i.e. what other aspect of social functioning are relevant for the rural population of Bangladesh that could be used instead?
Response: Thanks for your comment. We concede to the reviewer’s observation partially “This is likely due to socio-cultural norms and no. of missing responses (quite likely due to person-to-person interview which is not the most convenient mode of data collection on personal and intimate aspect”). However, it was not possible to collect data from the rural population of Narail district of Bangladesh without an interview-administered mode of data collection method due to the low level of literacy of the people, and this method allowed for a better understanding of the questionnaire itself. In an interview-administered method of data collection, response rates were impacted by both the skills of the interviewers and the level of sensitivity of the items. This study recruited trained interviewers to collect the data from the respondents (e.g. matured aged female interviewer was assigned for female participants while older aged males were assigned for male participants). We mentioned earlier that the Social domain fulfilled all the assumptions of the Rasch model except reliability. We now say that while social domain shows PSI= 0.635 and CA=.669, it does not sufficiently fulfil the person separation reliability but it does have a reasonable fit. Therefore, we did not delete the domain, kept the items and then mentioned the limitations in our discussion section (Discussion section, line 442-458, page 24-25. Many earlier studies conducted in developing countries reported the limitation of the social domain (Rocha, Power et al. 2012, Pomeroy, Tennant et al. 2013) associated with the WHOQOL-BREF questionnaire. To circumvent this limitation, we have proposed keeping the items, though special care would need to be taken when collecting the data from the social domain (interview administered method plus alternative response format for sensitive data).

Moreover, the small number of items in a domain also affects its PSI value, but we do not know “for certain” as we did not re-examine the original 4-domain structure of the WHOQOL-BREF, which may be a limitation. Future study may reconsider the factor structure of the domain and potentially restructure the items of the social domain in rural Bangladesh. Moving forward, the domain may incorporate alternative items, which might provide potential avenues to increase the internal consistency for the social domain. We have mentioned these limitations in our discussion section (line 459-465, on page 25).

9. Similarly, omission of work capacity is problematic. Work capacity could be linked to the demographic structure of the population given that 1 in 4 participants did not have any formal education and 39% have only completed primary school. These findings suggest that many rural residents in Bangladesh could be illiterate which strongly influences their position/potential in the job market. This, in turn, can also affect the perception of home environment, access to health care and transportation pertaining to the environment domain. The authors need to address these issues.
Response: Thanks for your comment. In Bangladesh, the ability to perform household work is not regarded as ‘work capacity’. However, 62 percent of the sampled population of the Narail district had less work capacity (housewives, retired and student) than other occupants. Although authors considered the omission of the item ‘work capacity in the rural area’ from the questionnaire considering the level of education and socio-economic condition of the study population, they agree with the reviewer’s opinion that omission of the ‘work capacity’ poses significant limitation to the shaping of physical domain, which merits further research. Authors also felt that the perception of home environment, access to health care and transportation pertaining to the environment domain could be better addressed in a future study by using modified questionnaire to gauge the impact of literacy on perceptions of home, access to health care and transportation. These limitations have been included in the Discussion section (line 465-470, page 25).

10. Personal beliefs in rural areas could also be deeply rooted in the cultural patterns and traditional gender roles. Because personal beliefs constitute important aspect of "one's perception on their position in life in the context of the culture in which they live, have goals, expectations, standards and concerns (3)". How would the authors alternatively formulate a more appropriate item instead of excluding it?

Response: Thanks for your comment. In a similar vein to point 9, unfortunately it is beyond the capacity of the survey to introduce alternative formulae for ‘Personal beliefs in rural areas’ in the WHOQOL-BREF questionnaire. As the data has already been collected for this study, modified questionnaire with reconstructed item ‘Personal belief’ could give potential avenue to improve the validity of the WHOQOL-BREF questionnaire for use in rural district of Bangladesh.

11. Exclusion of items in such a widely used questionnaire worldwide based on the Rasch analysis indeed represents a drawback, because it fails to provide data for cross-cultural comparisons, that has been previously performed a number of times using the WHOQOL BREF. The authors should address this issue in study limitations.

Response: The suggested limitations have been incorporated at the end of the discussion section (line 442-474, page 24-25). However, most of the cross-cultural studies find that not all the domains fit properly in Rasch analysis. Every study provides some modification depending on the profile of the data that employs the Rasch analysis. Some of the excluded items in this project are consistent with other comparable studies (e.g. sleep and rest, personal beliefs, transport and
Sebastian Salvador-De La Barrerra, PhD (Reviewer 2): As a clinician involved in rehabilitation procedures for disabled individuals, I believe that it is an interesting article about the validation of a useful and widely used QOL questionnaire.

Discussion and procedures seem to me well designed, and the number of participants is adequate.

It is surprising the number of items must be removed to reach adequate consistence. WHOQOL has demonstrated good reliability in a lot of languages and populations.

I wonder if the translation of the WHOQOL-BREF in the Bengali version is then adequate, or the population focused on this study has enough capacity to understand the questions proposed. Authors might comment this aspect. Maybe, as expressed in the Conclusion, WHOQOL questionnaires must be reduced for certain social and cultural groups.

Response: The questionnaire was translated into the Bengali language. The validity of such translation was checked through the back-translation procedure, pilot testing, and focus group discussion to avoid difficulties pertaining to linguistic complexities of the questionnaire. Due to the interview-administered mode of data collection, response were impacted by both the skills of the interviewers and the level of sensitivity of the questions. This study recruited trained interviewers to collect the data from respondents (e.g. matured aged female interviewer was assigned for female participants and older aged male for male participants).

