PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Psychometric properties of the Chinese version of the WHOQOL-HIV BREF to assess quality of life among people living with HIV/AIDS: A cross-sectional study
AUTHORS	Zhu, Yaxin; Liu, Jie; Qu, Bo

VERSION 1 - REVIEW

REVIEWER	Markos Tesfaye Department of Psychiatry St. Paul's Hospital Millennium Medical College Addis Ababa Ethiopia
REVIEW RETURNED	04-Mar-2017

GENERAL COMMENTS	The manuscript describes validation process of the Chinese version of the WHOQOL-HIV BREF. Several aspects of cross-cultural validation procedures have been conducted and presented in the manuscript. The manuscript has strengths such as being a multi-site study, relatively large sample size, confirmatory factor analysis, inter-rater reliability test, etc. However, there are some issues which might affect the quality of the work and need clarification in the manuscript as follows: Minor essential revisions: 1. Semantic validation is an important first step in cross-cultural validation. Translation alone is not enough. There needs to be back-translation and consensus meetings among all involved in the translation and preferably experts in the field. However, there is little description if this has been conducted. On page 5, lines 29 -34 and page 7, line 52, the authors state the Chinese version was "developed" by... and cite references. However, both of these reference articles are in Chinese. It will be difficult to verify these procedures. Also, only the translation but not the other steps in semantic validation were not explained. I suggest that the authors give a concise description of the semantic validation. If back-translation and consensus meeting were not conducted, they should be stated in the limitations. 2. On page 6, line 46, the authors state: " non-standard and ambiguous answers". It is not clear what this phrase means. It would be helpful for readers if examples are given or it is explained more clearly. 3. Page 9, line 56: Is it the average time since diagnosis? 4. Page 21, line 49: the discussion of domains' ability to discriminate

	between asymptomatic and symptomatic HIV emphasizes only the three domains that discriminated between the two groups. The other three domains which did not discriminate between the two groups of patients were not discussed in depth. The authors need to elaborate why half of the domains did not perform well on this measure of validity and what the implications would be. 5. The authors state that they have selected a convenient sample. As the study was conducted in self-administered format, it appears that patients who have difficulty reading have been excluded. Furthermore, the use of only one method of administering the questionnaire will not allow assessment of technical validity (self-administered vs. interviewer administered). Hence, the authors need to state these limitations in their discussions. 6. There are some errors in the language which need to be revised.

REVIEWER	Dr.B.Unnikrishnan Kasturba Medical College (Manipal University), Mangalore - 575001, Karnataka State, India.
REVIEW RETURNED	06-Mar-2017

GENERAL COMMENTS	The research paper is well written to assess the Psychometric properties of the Chinese version of WHOQOLHIV BREF to assess quality of life among People Living with HIV/AIDS. This paper requires a specialist statistical review.

REVIEWER	Shari Messinger Cayetano University of Miami Miller School of Medicine Department of Public Health Sciences Division of Biostatistics
REVIEW RETURNED	13-Apr-2017

GENERAL COMMENTS	The study is well written and designed/analyzed appropriately. My only concerns are that there is gender imbalance in the data but this is transparently described. The analytic methods are appropriate for the stated goals.

REVIEWER	Birgit Grund University of Minnesota, USA
REVIEW RETURNED	04-May-2017

GENERAL COMMENTS	The instructions for reviewers state prominently “We do not require a judgement on the significance of the study.” Therefore, my comments will not address significance. The objective of the manuscript was to assess psychometric properties of the Chinese translation of an abbreviated version of the WHOQOL-HIV questionnaire which had been developed to measure quality of life (QOL) in HIV-infected individuals. Authors used

	standard statistical methods to describe the internal consistency of the questionnaire. They assessed whether the questionnaire is relevant for measuring QOL by computing correlations with an excepted QOL instrument (4 items and summary measures from the SF-36), and by investigating whether patients with lower CD4 cell counts (an indicator for poorer health) have lower QOL, and whether those who have HIV-related symptoms have lower QOL. This approach is similar to that used by other authors to assess HIV-related QOL instruments (e.g., Reychler et al., Plos One 2011). The main strength of the manuscript is the large sample size (n=1100), and the detailed summary statistics describing the questionnaire for a sizable cohort in China. The statistical methods used to describe internal consistency, test-retest reliability, and desirable psychometric characteristics are straightforward and appear to be accepted as sufficient in the field. We have to trust the authors that the calculations were done correctly; since the underlying data were not provided, readers can't check that. (In Table 2, the ceiling effect of "Death and dying" is given as 100%, with a mean score of 3.46 on a 5-point Likert scale. This can't be correct – could be a transcription error.) Authors discussed limitations. There are two more that were not mentioned. First, missing values were imputed as the median score of those who answered the item. As a result, the estimated variances will underestimate the variances of the underlying distributions, and the reported model fit is likely a bit too optimistic. How much of a problem this is depends on the number of missing values per item, which was not reported. The second limitation is more serious. Authors conclude that the WHOQOL-HIV BREF "is reliable and valid", and this conclusion is based on measures that are accepted by the field as supporting "reliable and valid". But how well does the questionnaire really measure quality of life? Correlations of domain responses with summary measures of the SF-36 are mostly in the region of 0.4-0.7, which is considered sufficient, but it is not clear how well the general-purpose SF-36 measures QOL in HIV-infected persons. Similarly, when comparing mean QOL by WHOQOL-HIV BREF between the patients with the lowest versus those with the highest CD4 cell counts, the differences are statistically significant, but small; it is not clear that the difference is clinically meaningful. The manuscript would benefit from editing for correct use of the English language. For example, on page 7, line number 41, "measure perspective of general QOL" probably was meant to convey "measure perception of general QOL", and there are several other instances. Also, "multivariate analysis of variance" is usually abbreviated as MANOVA (p. 9, line 29). Data sharing: This question asks for the patient-level raw data, so that readers can reproduce the results. These are not provided. Authors should give an explanation.

VERSION 1 – AUTHOR RESPONSE

Reviewer #1 (Dr. Markos Tesfaye):

1.Semantic validation is an important first step in cross-cultural validation. Translation alone is not enough. There needs to be back-translation and consensus meetings among all involved in the translation and preferably experts in the field. However, there is little description if this has been

conducted. On page 5, lines 29 -34 and page 7, line 52, the authors state the Chinese version was "developed" by... and cite references. However, both of these reference articles are in Chinese. It will be difficult to verify these procedures. Also, only the translation but not the other steps in semantic validation were not explained. I suggest that the authors give a concise description of the semantic validation. If back-translation and consensus meeting were not conducted, they should be stated in the limitations.
Re: Thank you very much for your constructive suggestion. A semantic validation has been conducted to ensure conceptual equivalence and cross-cultural validation. Translation and cross-cultural adaptation from the original English version of the WHOQOL-HIV into Chinese were performed according to the method proposed by the WHO. The implementation of this method includes the following steps: forward translation, expert panel review, back-translation, pre-test and cognitive interview, and formulation of the final version. In addition, the final Chinese version is conceptually equivalent to and cross-culturally adapted from the original English version. These details have been provided in the introduction section.

2.On page 6, line 46, the authors state: "non-standard and ambiguous answers". It is not clear what this phrase means. It would be helpful for readers if examples are given or it is explained more clearly.
Re: Thank you very much for your advice. We apologize for the unclear expression. To ensure the quality of the questionnaire, specially trained investigators inspected the questionnaires after their completion and identified those that were missing answers or had more than one answer. We have re-written this part of the methods section.

3. Page 9, line 56: Is it the average time since diagnosis?
Re: Thank you very much for this comment. We have revised this sentence to state, "The average time since diagnosis was 3.91 years (SD = 2.85)".

4.Page 21, line 49: the discussion of domains' ability to discriminate between asymptomatic and symptomatic HIV emphasizes only the three domains that discriminated between the two groups. The other three domains which did not discriminate between the two groups of patients were not discussed in depth. The authors need to elaborate why half of the domains did not perform well on this measure of validity and what the implications would be.
Re: Thank you very much for your helpful suggestion. We have elaborated on this in the discussion section.

5. The authors state that they have selected a convenient sample. As the study was conducted in self-administered format, it appears that patients who have difficulty reading have been excluded. Furthermore, the use of only one method of administering the questionnaire will not allow assessment of technical validity (self-administered vs. interviewer administered). Hence, the authors need to state these limitations in their discussions.
Re: Thank you very much for your constructive suggestion. There were potential limitations due to the self-administered format. The self-administered assessment led to the exclusion of PLWHA with difficulty reading, and the results may not be generalizable to the entire population of PLWHA in China. In addition, as suggested, applying various methods of administering the questionnaire could allow an assessment of its technical validity. These limitations were stated in our manuscript.

6.There are some errors in the language which need to be revised.
Re: Thank you very much for your valuable comment. The manuscript has been thoroughly edited by a professional English language editing service to ensure that the language meets publication standards.

Reviewer #2 (Dr. B.Unnikrishnan):

1. The research paper is well written to assess the Psychometric properties of the Chinese version of WHOQOLHIV BREF to assess quality of life among People Living with HIV/AIDS. This paper requires a specialist statistical review.
Re: Thank you very much for your evaluation and recommendation.

Reviewer#3 (Dr. Shari Messinger Cayetano):
1. The study is well written and designed/analyzed appropriately. My only concerns are that there is gender imbalance in the data but this is transparently described. The analytic methods are appropriate for the stated goals.
Re: Thank you very much for your kind comments. The gender imbalance may be due to the use of convenience sampling, and the limitations of this sampling method have been further described in our manuscript. In our study, the WHOQOL-HIV BREF showed factorial invariance across gender groups.

Reviewer #4 (Dr. Birgit Grund):
1.The objective of the manuscript was to assess psychometric properties of the Chinese translation of an abbreviated version of the WHOQOL-HIV questionnaire which had been developed to measure quality of life (QOL) in HIV-infected individuals. Authors used standard statistical methods to describe the internal consistency of the questionnaire. They assessed whether the questionnaire is relevant for measuring QOL by computing correlations with an excepted QOL instrument (4 items and summary measures from the SF-36), and by investigating whether patients with lower CD4 cell counts (an indicator for poorer health) have lower QOL, and whether those who have HIV-related symptoms have lower QOL. This approach is similar to that used by other authors to assess HIV-related QOL instruments (e.g., Reychler et al., Plos One 2011).
Re: Thank you very much for your kind comments. Although the assessment of QOL has recently become an essential element of AIDS care in China, there is a lack of valid measurement tools to evaluate the QOL of PLWHA. To better understand their QOL, our study was designed to assess the psychometric properties of the WHOQOL-HIV BREF among Chinese PLWHA, referring to previous studies (Reychler et al., Plos One 2013; Skevington SM et al., AIDS Care 2015; Fu ST et al., Harm Reduct J 2013; van Lummel RC et al., Plos One 2016; Yekaninejad MS et al., Support Care Cancer 2015.)

2. The main strength of the manuscript is the large sample size (n=1100), and the detailed summary statistics describing the questionnaire for a sizable cohort in China. The statistical methods used to describe internal consistency, test-retest reliability, and desirable psychometric characteristics are straightforward and appear to be accepted as sufficient in the field.
Re: Thank you very much for this comment. Our research team has built a long-term relationship of cooperation and co-research with the CDC in the Liaoning, Henan, and Zhejiang provinces. With support from these institutions, the quality of the research could be guaranteed.

3. We have to trust the authors that the calculations were done correctly; since the underlying data were not provided, readers can check that. (In Table 2, the ceiling effect of "Death and dying" is given as 100%, with a mean score of 3.46 on a 5-point Likert scale. This can be correct-could be a transcription error.)
Re: Thank you very much for your constructive comments. We have reviewed the dataset, and a transcription error was made regarding the result of the "Death and dying" ceiling effect. The ceiling effect of this item was 25.1%. We have corrected this in the manuscript. We are very sorry for this misunderstanding.

4. Authors discussed limitations. There are two more that were not mentioned. First, missing values were imputed as the median score of those who answered the item. As a result, the estimated variances will underestimate the variances of the underlying distributions, and the reported model fit is likely a bit too optimistic. How much of a problem this is depends on the number of missing values per

item, which was not reported.
Re: Thank you very much for your valuable advice. We have reviewed the dataset, and the percentage of missing values per item ranged from 0.2% to 2.3%. The item "Sex life" had the maximum number of missing values. In addition, the item "Access to health and social care" had the least number of missing values. We have reported this information in the limitations section.

5. The second limitation is more serious. Authors conclude that the WHOQOL-HIV BREF "is reliable and valid", and this conclusion is based on measures that are accepted by the field as supporting "reliable and valid". But how well does the questionnaire really measure quality of life? Correlations of domain responses with summary measures of the SF-36 are mostly in the region of 0.4-0.7, which is considered sufficient, but it is not clear how well the general-purpose SF-36 measures QOL in HIV-infected persons. Similarly, when comparing mean QOL by WHOQOL-HIV BREF between the patients with the lowest versus those with the highest CD4 cell counts, the differences are statistically significant, but small; it is not clear that the difference is clinically meaningful.
Re: Thank you very much for your constructive suggestion. The SF-36 is a generic QOL measurement tool that has proven to be reliable and valid for assessing the QOL of PLWHA (Meng YJ et al., Public Health 2008; Bing EG et al., Qual Life Res 2000). In addition, the SF-36 has also shown clinical validity in evaluating the effect of HAART use on QOL (Liu C et al., Quality of Life Research 2006). We have added this information to our manuscript. As mentioned, the differences in QOL scores between the CD4 count subgroups were statistically significant but small. The results of specific associations between biological markers and QOL are conflicting, as CD4 counts do not always relate to how well patients feel (Pereira M et al., Quality of Life Research 2014). The next step of our research should be to conduct a longitudinal study to further measure the sensitivity of this instrument to changes in CD4 counts; this information could clarify whether the differences are clinically meaningful. These limitations were added to the manuscript.

6. The manuscript would benefit from editing for correct use of the English language. For example, on page 7, line number 41, measure perspective of general QOL probably was meant to convey measure perception of general QOL? and there are several other instances. Also, multivariate analysis of variance is usually abbreviated as MANOVA (p. 9, line 29).
Re: Thank you very much for your valuable advice. We have made corrections based on your advice. In addition, the manuscript has been thoroughly edited by a professional English language editing service to ensure that the language meets publication standards.

7. Data sharing: This question asks for the patient-level raw data, so that readers can reproduce the results. These are not provided. Authors should give an explanation.
Re: Thank you very much for your valuable suggestion. All data from the current study were reported in the manuscript. Participant-level data are not publicly available due to ethical and legal obligations to the participants in the study. Data are available upon request to the corresponding author and with permission from the local ethics committee. This explanation has been provided in the "Data sharing" section.

Thank you very much for your comments about the revised manuscript. They were very helpful in our revision process. If there are any further problems or mistakes in the manuscript, please feel free to contact me.

VERSION 2 – REVIEW

REVIEWER	Markos Tesfaye, MD, PhD Department of Psychiatry St. Paul's Hospital Millennium Medical College Addis Ababa, Ethiopia
REVIEW RETURNED	11-Jun-2017

GENERAL COMMENTS	Thank you for addressing my comments.