Reviewer's report

Title: An investigation of factors associated with the health and well-being of HIV-infected or HIV-affected older people in rural South Africa

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Reviewer: Lisa Kakinami

Reviewer's report:

Dear editors of BMC Public Health,

Thank you for the opportunity to review the revised and re-submitted manuscript "An investigation of factors associated with the health and well-being of HIV-infected or HIV-affected older people in rural South Africa". The article is interesting, but is disorganized and suffers from grammatical errors and analytic decisions which limit the article’s interpretability and potential.

I have outlined my comments according to the journal's guidelines for categories:

Major compulsory revisions:

1) The manuscript compares quality of life, functional ability and overall health state between HIV-infected, and HIV-affected persons living in South Africa. I appreciate that the authors have addressed my previous comment and included both groups together in a single analysis in order to properly compare the groups. However, I disagree with the authors that an ordered logistic regression is more informative or meaningful than maintaining the measures as continuous, or using a clinically meaningful cut point for logistic regression. With ordered logistic regression, the results are interpreted as (for example) the likelihood of HIV infected persons having a higher QoL compared to the HIV-affected persons (via death in the household). I don’t personally find the interpretation to be as interesting or informative as being able to quantify the difference in QoL between groups, or to be able to quantify the risk of having a QoL below an important threshold. Especially in light of the fact that unlike responses on a Likert scale that are distinctive from one another, the quintiles are in essence ‘forced’ groupings, and a response of 40 may be categorized as poorest health and a response of 42 categorized into the next poorest health simply based on the distribution of the responses, although the two values may not be statistically or meaningfully different from one another. Although the authors argue in their ‘response to reviewers’ that they were more interested in “showing factors associated with moving from one category to the next”, I think this analytic decision loses a lot of interesting information. It was also not clear from the manuscript that the quintiles were created based on the full sample (and not stratified by HIV status), or if the assumptions of ordered logistic regression were met.

Whatever statistical method the authors choose, contrast statements might be something the authors choose to conduct to be able to compare all the groups to
one another (and not just HIV+ and HIV- (affected) to HIV- (death)). It would be just as interesting to be able to compare HIV- (affected) to HIV+.

2) The authors present tables that compare men vs women (subdivided into 4 groups each), and also HIV-infected vs HIV-affected (not subdivided into 4 groups). I find the presentation of results using both of these methods as a bit disorganized, and without direction. Because the manuscript is more about the HIV+ to HIV- comparisons, I strongly advise the authors to remove the stratification by sex for Table 1. This would result in the following restructuring of tables:

Table 1: Background characteristics by group (group 1, group 2, group 3, group 4). Not stratified by sex. Remove current table 2 and table 3
Table 2: Unadjusted health and well-being (groups: HIV+, HIV- (death), HIV- (affected)) with factors (age, sex, income, etc)
Table 3: Adjusted regression: Factors associated with health and well-being for HIV+ vs HIV- (death) vs HIV- (affected)
Table 4: Stratification of health and well-being by sex (if the authors really must describe sex differences)

If the authors use continuous or binary logistic regression, all tables in appendix are not needed.

3) A separate section for statistics needs to be outlined in the methods. The authors need to remove their descriptions of methods from the results section (“Significant differences (using chi-square p-values of <0.05)”) and to integrate it all into a single section labeled as “Statistical analysis” in the methods. This should be the last paragraph of the methods.

4) The tables should be adequately labeled and with the proper footnotes for the reader to be able to determine if the results are adjusted, or unadjusted without referencing the text. I cannot tell from Table 4 if the results are adjusting for all covariates listed in the table, or if the HIV status variable is unadjusted, and all other variables (such as age, sex) are adjusted for HIV status only. It is also not clear from the text if the results in Table 4 are adjusted for covariates.

5) A number of language mistakes throughout the manuscript detract from the manuscript’s quality. The manuscript should be thoroughly reviewed before submission.

Minor essential revisions:

1) Authors oftentimes name an acronym, and then spell out the word again later. The first time a term is listed as an acronym should be the only time the words are spelled out in full (such as WOPS, or VA). The authors might also consider just spelling out VA (verbal autopsy) each time, as it is only mentioned a handful of times, and is not a helpful acronym.

2) since no interaction terms were significant, the authors should not present results with interaction terms in the text. (ie. Remove the 2 sentences starting
with “Overall, adjusting for gender and an interaction term of age and HIV status...”

3) resident should be ‘residing’

4) instead of listing ‘group 1, group 2...’ in tables, text and figure, list what the groups are

5) typo in note in Table 1: group 1 is listed twice

Discretionary revisions:

1) The acronym ART is not necessary in the abstract as it is not used again.

2) The first and second paragraph in the methods might be better organized if they were reversed.

3) The text regarding sample size could be better integrated after the ‘bullet points’ outlining the groups (i.e. after “The target sample was 400 individuals....”, the following sentence should be “The criteria for inclusion were...”)

**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 I have no competing interests