Author's response to reviews

Title: Socio-economic Inequality and HIV in South Africa

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Author's response to reviews: see over
Response to the reviewer: Gavin Lloyd George
The authors would like to extend much appreciation for the constructive and useful comments. We have attempted to give due considerations to accommodate most of the suggestions and comments particularly the need for language wash on the manuscript.

Methodology section has been corrected. Sub-headings have now been rearranged in such a way that statistics issues are reflected in the methods section rather than in the result or discussion. The method section has two sections: a sub-heading that describes how outcome measures were derived and another on how data was analysed.

We thought that the title of the manuscript and research question doesn’t need further modifications other than clarifying the language used to state them. We also chose to make separate reference on MCA and its challenges for readers who might want to learn more about the method rather than divulging into unnecessary detail in this manuscript whose main objective is not methodological critics on socio-economic measurement.

Other Major compulsory revisions
1. The discussions and conclusion sections should not introduce any new statistics or ideas. The discussion section should simply summarise the findings of the analysis, providing a link between the main hypothesis/research question and the conclusion.
   Done

2. The section on the weighting of the data and ethical approval (p5-6) should be footnoted rather than included in text.
   Done (see Page 4)

3. Language Issues Some examples include: Page 1 middle of page “Since the socio-economic impact of HIV/AIDS, due to lost economic opportunity and cost of caring for the sick and orphan-hood, is much severe among poorer household and communities, HIV began to be strongly associated with poverty during the second decade of HIV epidemics” This sentence needs revising as it is not well written. More specifically “Orphan-hood” should be “orphaned”, it should be “much more severe” and it should be “epidemic”.
   Corrected, re-written

4. Page 2 last paragraph “…, this study examines association of socio-economic inequality...” This is one example of a consistent trend throughout the document of a lack of use of the word ‘the’. It would be better read as “this study examines the association of socio-economic inequality”
   Corrected- Page3

5. Page 6 last sentence “because due to skewed distribution of the quintiles”. It should be either “because of” or “due to”.
   Corrected- Page 5
6. Page 8 second paragraph “HIV testing reports showed less disparity by major environmental characteristics.” Using the term ‘environmental characteristics’ makes the reader think the authors are referring to natural resources and exposure to the elements. Instead, by deduction, it appears that the authors are actually referring to geographical location (urban versus rural areas). Please ensure proper use of this term as it can be misleading.
Corrected, page 7

7. Page 13 second paragraph “the greatest majority…” It should be “the majority of…”
Corrected, Page 11
The methodology section has been corrected with clear subheadings

Minor essential revisions
8. The results tables (1 to 4) report both p-values and the confidence intervals to indicate the significance of the variables. It should be one or the other. The authors should report the standard errors in tables 1 and 2, particularly if weighted data are used.
Thank you. You are right. However, we chose to leave in the confidence intervals in order to compare among sub-categories apart from the comparison with reference category

9. The introduction of the Multiple Correspondence Analysis (MCA) is sloppy. The equation needs to be stated (as per eq 1 on page 4) and then each element should be explained on a separate line. For example:
MCA = W1X1 + W2X2 + ...+ WjXij (1)
Where:
MCA represents the household’s composite assets score,
Xij is the response of household i to category j and
Wj is the MCA weight
Thank for this comments. A separate reference on MCA and its challenges has been provided for readers who might want to learn more about the method rather than divulging into the detail in this manuscript whose main objective is not methodological critics on socio-economic measurement.

Response to reviewer: Anthony Mbonye
The authors would like to extend much appreciation for the constructive and useful comments

“The study aimed to show that socio-economic inequality is linked to HIV in South Africa. This is an important topic that could help refocus attention on how HIV is linked to inequalities and eventually target programs to the most vulnerable people”

We have given due considerations to accommodate the suggestions. Of note, the manuscript does not envisage to test any hypothesis. Rather, it describes a situation of “inequality as an important factor for the burden of HIV and utilization of services to tackle the problem” by adding another piece of information to the existing debates both in South Africa and the rest of sub-Saharan Africa. In that regard, we feel that the manuscript objectives and justifications are clear. We have added more references to the literature on the topic of inequality as per the suggestion.

We acknowledge the delay in publishing this information, and new survey data is still not available. Nonetheless, the situation of health inequality in South Africa today is unfortunately not any different than it was 5 years ago, which makes the need for such debates relevant for many years to come until the issue gets the right attention it deserves by relevant policy makers and development partners.
Others minor comments:
- Farmland was captured in Survey as formal rural settlement
- Comments on sample size targets and response rate have been addressed in the text, also reference number for ethical clearance
- Reference list has been re-formatted

Specific comments
1. As mentioned earlier the background doesn’t refer to existing literature on risk perception and socio-economic inequities
References cited, Page 1 in Background section

Methods:
2. The study used data of 2008; it is now five years, isn’t this outdated? This should be discussed.
We acknowledge the delay in publishing this information, and new survey data is still not available. Nonetheless, the situation of health inequality in South Africa today is unfortunately not any different than it was 5 years ago, which makes the need for such debates relevant for many years to come until the issue gets the right attention it deserves by relevant policy makers and development partners.

3. Why didn’t the researchers capture farmland since this measures rural wealth, e.g. cattle, agricultural produce etc.?
We did not have these measures in the data sets. This is one of the limitations of the study. “The Socio-economic index profiling in the study could not make a clear discrimination within the “middle class and wealthy” mainly because of weaknesses in measures of living standards. There is, however, a compelling urgency for the national HIV/AIDS response to, direct the program focus to women and in particular poor women”

4. On p.3 the last sentence, it is mentioned that 13,440 were occupied households, what proportion was this? What was the target sample size?
Corrected, Page 5 of manuscript
“Of the 15, 000 households sampled, only 13, 440 (89.3%) were actually occupied households; of which 80.8% were interviewed (10,856/13,440), and 97.5% (10,588/10,856) had valid data for deriving the socio-economic index”

5. On p.4, sub-section statistical analytical methods…the word “analytical” should be deleted
Corrected

6. On p.5 the sub-section socio-economic index…..the last word data should be deleted.
Corrected

7. P.8 and 9, what was the response rate?
Non-response was largely due to refusal (9.3%, 1252/13,440) or no household member at home after four repeat visits (7.0%, 946/ 13,440). The study sample (N= 14,593) of adults 15-64 years, out of all 23112 cases in the survey, is used in the subsequent analysis.

8. There should a reference number to the ethical clearance.
Corrected, Page 5, footnote section

Results section
9. The skewed distribution presented should be discussed.
Three socio-economic index groups were used instead of the more widely used five groups due to the skewed distribution of the quintiles; the 5th quintile had only 0.6% of the total adults which meant that the frequency was too low frequency for meaningful analysis. Also the socio-economic class differences in the rural communities are narrow because of similar income generation activities at that level [20]. Hence, it was more realistic to use three socio-economic index groups to differentiate the households.

Discussion

10. The first paragraph is a repeat of the results
Corrected

11. The second paragraph should specify what stigma
Corrected, stigma is based on items from individual questionnaires are stated in page 6

12. P.13 the first paragraph should be shifted to the results section
Corrected

13. The discussion should highlight the limitations of the methods used and how to overcome them.
Done (section on discussion)

We found instances of over-and-under estimation of poverty in some settings in a manner that is not reflective of the reality on the ground even after adjustment. These weaknesses mirror the usual critic on an asset index for its inability to clearly distinguish “poor households from the poorest ones”. For example, the research instruments used in the study had only limited measures of living standards. Rustein(2008) suggests developing questionnaires based on variables that appropriately describe economic situations in both in the urban and rural area and adequately discriminate different economic groups among residents and calculating a composite index of the two.

References

14. Each reference has a different format e.g. Ref.6 has a different format from 1-6. The journal titles of some references are abbreviated while others are written in full. Ref 17, 18 do not show source.
Corrected

Additional editorial requirements:

(1) Title page: please include a title page at the front of your manuscript file. It should contain, at minimum, the names, institutions, countries and email addresses of all authors, and the full postal address of the submitting author.
Corrected

(2) Abstract: Please include an abstract as the second page in your manuscript file (directly following the title page). Please format your abstract according to the guidelines for authors
Corrected

(3) Please format the Authors’ Contributions section of your manuscript according to the following guidelines (please use initials to refer to each author’s contribution): (see text)
NW, NT, KZ conceived of the study, and participated in its design and coordination. NW, NT wrote the draft manuscript. NW, NT performed the statistical analysis. All authors read and approved the final manuscript.