Reviewer's report

Title: Barriers to antiretroviral therapy adherence in rural Mozambique

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Reviewer: Patrick Ndimubanzip

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General issues to note:

The manuscript represents a worthy piece of work. The paper outlines that in Mozambique, economic, clinical and social barriers undermine antiretroviral therapy initiation, treatment, continuity and adherence. The following seven themes emerged as important factors influencing adherence to ART: ability to afford quality and sufficient food, adequate transportation system for patients to go to health facilities, relationship between patients and health care workers, confidentiality, stigma, ART side effects and patients' response to treatment.

I very much appreciate the attention to the important problem addressed in this paper; however, I would like to raise some few concerns.

Unfortunately the manuscript as it currently stands does not communicate effectively to the reader. There are three reasons for this:

• First, although the meaning is understandable, the text should be carefully reviewed by a native English speaker for grammar and style. It will improve the overall quality of the text.
• Second, the paper would be improved if it provided a better description of the methodology used.
• Finally, the discussion should be focused on advancing the argument step by step, without what seem to be a listing of responses provided by study participants. Numerous interesting issues are mentioned “en passant” in the discussion without further in depth analysis.

Major compulsory revisions:

1. Title: The manuscript dwells upon barriers to adherence but also initiation of antiretroviral therapy. It is one of the questions asked to community participants (methods first paragraph). Additionally, in the last paragraph of the results section, the authors mention that “patients prefer traditional treatments and that they go to the health centers at an advanced stage of the disease”. Does it mean that ART is delayed because people prefer traditional medicine?

Would the authors consider aligning the title with content of the manuscript?

2. Methods: The methodology is not described completely and is not specific enough. A scientific paper needs to describe the method with sufficient details so that a reader could duplicate the study.
Please clarify the following questions:

- **Participants selection**
  - Study groups
  The process of selecting participants and deciding on the number of groups is unclear.

  Please clarify what the sample is based on. How did the community leader identify potential participants to the study? How was rigor ensured? As, participants were selected regardless their HIV status, how many were actually positive and were receiving treatment? How were people who were not HIV positive or who were not on antiretroviral therapy chosen? Was the aim of this study to compare health care workers’ responses to community participants’? How was the number of health care workers and community participants decided?

  - Focus groups
  How was data collected? Please elaborate on the process the focus groups occurred by answering the following questions:

    In total, how many focus groups were conducted? Were some focus groups specific to community participants and other specific to health care workers? How many focus groups were held for each category of study participants? How many participants per focus group? How many focus groups were organized in each of the 6 rural communities? Were there specific focus groups for men and women?

  - How were data analyzed?
  - Were there any ethical issues considered?

3. Results: The results are presented in a way that could be misleading. Health care workers’ responses are compared to community participants’ responses. However, the objective and the methodology do not imply such a comparison. Furthermore, the authors do not clearly explain the composition of different focus groups. Where focus groups for health care workers different from those of community participants?

The questions are different: community participants were asked about seeking and continuing treatment for HIV as instructed, while health care workers were only asked about barriers to ART adherence. Those questions are not exactly the same questions.

I strongly encourage the authors to address this issue of ambiguous results presentation.

4. Conclusion: The authors should only provide conclusions of the study directly supported by the results. Issues of health care workers’ job satisfaction and that they should be incentivized to stay in rural areas is not reflected in the findings. The paper is more about barriers to adherence, rather than health care workers’ job satisfaction. I recommend taking out those two elements.
Please change “address issues of health care work job satisfaction and attitudes…” into “issues of health care workers’ job satisfaction”

Minor essential revisions

5. Introduction, second paragraph: “Explanation for high rates of adherence includes use of testimonials to create social networks…” What is meant by testimonials? Do the authors mean adherence support persons? Would the authors please clarify?

6. Methods, first paragraph: Rather than aspiring to representativeness qualitative research usually aims to reflect the diversity within a given population. I would suggest replacing the word “representative” with “diverse”. Was diversity achieved? How diverse were the selected study participants?

7. Methods, first paragraph: “In addition, focus groups of 6 to 12…” It seems that there is something missing before this sentence. Please clarify how data were collected with community participants. It is not clear, in this method section, whether community participants were interviewed or held focus groups.

8. Results: It would be good to present a table showing the focus group number/ the participant type (community participants or health care worker), the rural community where the focus group took place and the number of participants in that specific focus group.

9. Results/ Economic Barriers to Adherence, first paragraph: This results section should only present data of the current study on not discuss other figures. “In 2008, 46% of children in Zambéza Province suffered…” should be moved to the discussion section.

10. Results/Economic barriers to Adherence: “A man in the district of Alto Molócuè said…” Is he speaking from experience? Does he live with people who are on ART? Is he HIV positive? Do we know that? According to the methods section, study participants from the community were recruited regardless their HIV status. Where do HIV negative people get their information/knowledge/experience from? What ensures that the information they provide is valid?

11. Results/Social barriers to Adherence: Is the pill sharing specific to ARV drugs? From the text it seems that it is a more general phenomenon (not specific to ART for which patients get a very specific pre-treatment counseling). Could you please clarify?

12. Results/ Social Barriers to Adherence, second paragraph: Does “to have shame”, here, mean to maintain a sense of restraint against offending others. Did the authors mean to say “people are non-adherent because they felt ashamed?”

13. Discussion: This section should not be a reiteration of the results. The discussion section should show how the results of this study have influenced our understanding of the problem being examined. Authors should discuss more
extensively the significance of all the results, interpret their meaning, and suggest potential courses of action

14. Discussion, fourth paragraph; Please explain the following sentence: “With high levels of poverty…net for rural poor”. My understanding was that through PEPFAR, people receive free health care services in rural Mozambique. How would medication sharing be explained by poverty in that case?

How does sharing medication solidify relationships among patients? Are we talking about patients who are not on treatment themselves? Is there any reference to substantiate this statement?

15. Discussion, seventh paragraph: Strengths and limitations are combined in a single paragraph and there is no transition.

Why do the authors say that the “study identifies opinions of a relatively small number of community participants and healthcare workers”? How many focus groups were organized in each community? What was the optimal sample size? How well was the concept of data saturation applied?

Discretionary revisions

16. Introduction, last paragraph: “abandonment” should better be replaced with “treatment interruption” to be more specific

17. Methods, second paragraph: Although there is nothing grammatically wrong with starting a sentence with "this" or “these” It is essential, however, that it is clear what the “this/ these” is referring to.

18. Results/ Characteristics of participants: What does 4 years of education mean in Mozambique? Is it first half of primary school? What does 11 years of education mean in Mozambique? Is it completion of secondary school?

19. Results/ Clinical barriers to adherence: “If patients ask the pharmacists to repeat what they said because they did not understand, patients are insulted.”The sentences is more clear when “you” is replaced by the first “patients”, “them” by “pharmacists” and “they” by the second “patients”.

20. Results/ Clinical barriers to adherence: Does the presence of many women make health care workers’ remarks more derogatory? Is the language in this section gender sensitive?

21. Results/ Clinical barriers to adherence: The basic rule with paragraphing is to keep one idea to one paragraph. If the authors begin to transition into a new idea, it belongs in a new paragraph. In this section the authors start talking about confidentiality and then in the two last lines without transition they talk about language challenges.

22. Results/ Clinical barriers to adherence: In formal writing, contractions should not be used (except for quoting study participants in their informal tone)

Discussion, second paragraph: Please clarify the "this" in “This has been a
recurring theme …” What is it referring to?

Denial of disease was not presented in the results section and therefore should not appear in the discussion.

It will be good to keep one idea to one paragraph; Authors should not be going from “medication sharing” to “absence of a coherent chronic disease management infrastructure in rural Mozambique”.

Please clarify the sentence “Given expressed community …….local leaders” How does it relate to adherence?

The authors have done a pretty good job addressing the question of interest. Few points needing clarification prior to publication remain. Specific comments are detailed below:

# Questions to be evaluated in review of the manuscript Evaluation

1. Is the question posed by the authors well defined? Yes
2. Are the methods appropriate and well described? No
3. Are the data sound? Yes
4. Does the manuscript adhere to the relevant standards for reporting & data Yes
5. Are the discussion and conclusion well balanced No
6. Are limitations of the work clearly stated? Yes
7. Do the authors clearly acknowledge any work Yes
8. Do the title and abstract accurately convey what has been found No
9. Is the writing acceptable? No

**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:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests