Reviewer's report

Title: Prevalence of HIV and syphilis infections among pregnant women attending antenatal clinics in Tanzania

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Reviewer: Lyle McKinnon

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Review of “Prevalence of HIV and syphilis infections among pregnant women attending antenatal clinics in Tanzania”

Manyahi et al. present data on HIV and syphilis prevalence from a large cross-sectional study of 133 ANCs from across Tanzania. The study appears to have been well conducted, although several issues remain to be addressed, particularly around the syphilis results. Also, the manuscript has grammatical issues that need to be addressed prior to publication.

Major

1. The authors claim a decline in prevalence but only present data from one set of surveys.

2. It is not clear why the malaria survey is referenced in the abstract.

3. I’m not sure why distance to a clinic have anything to do with HIV or syphilis prevalence? This might make more sense it was adherence to a treatment or something similar.

4. It seems in places that the categories of previous pregnancies differ for the syphilis and HIV analyses. In the tables it is clear this is not the case, so it is a matter of presenting the data more clearly. Also, with such a large sample isn’t it possible to look at prior pregnancies as a continuous variable (up to 5 or more)? It is not clear in the abstract what the reference category is.

5. In the intro a major routine data source is left out: household surveys. These are typically less biased than either ANC or STI. Many believe that ANC doesn’t really represent the ‘general’ population, particularly globally. Serial surveys however can reveal trends in that particular population.

6. The stratified random sampling strategy is not really described.

7. Was any QC done on the RPR testing? This is particularly the case if it is performed by different types of staff at different sites, and especially concerning given the contradictory data regarding syphilis and HIV. In the discussion some doubt is cast regarding the integrity of the data from rural sites.

8. Line 162: “Compared to women who had more than 5 pregnancies, women
with 1 to 4 pregnancies had significantly greater likelihood of being HIV infected.”
What about no previous pregnancies? And stats?

9. Lines 167-71: The presentation of the multivariate analysis does not include any statistics, and the table is not referenced.

10. Is it odd that rural and semi-urban have more syphilis than Urban? Has this been observed in other regions?

11. Lines 192-94. “Apparently, there was no clear association in the occurrence of the two infections. For example, while the prevalence of HIV infection in Iringa region was 14.82% that of syphilis was only 1.91%. Similarly, the prevalence of HIV infection in Mbeya region was 11.31%, while that of syphilis was 2.2%.” In addition to citing examples, it would be useful to know what the correlation value is between syphilis and HIV. Were the analysis stratified by site? Are there major variables that differ between sites? Also were there any associations between syphilis and HIV on an individual (not regional) level?

12. Line 212-13. “These observed differences are probably due to differences in social-economic activities and level of wealth in urban versus semi-urban and rural areas (15, 16).” Could this also be due to other factors, specifically around sexual networks and prevalence of sex work?

13. Line 233-34: This is merely re-stating results and should not be in the Discussion. Same comment applies for re-presentation of major findings elsewhere in the Discussion.

14. Line 248: “Possible explanations for lack of correlation could be part to the use of non-treponemal test for diagnosis of syphilis” It is not clear what this means.

Minor

1. OR and confidence intervals should stick to the same # of sig figs – typically either 1 or 2 rather than 3

2. Typo on p4, line 86 – ssurveillance

3. Line 164: “Moreover, the likelihood of being HIV infected was significantly less frequent among women residing in rural (3.13%) compared to semi-urban (5.82%) and urban (6.59) (cOR= 0.458, 95% CI 0.401-0.523; p<0.001). Only one cOR given here but there are 2 comparisons.

4. Line 221: “The relatively low HIV prevalence (3.9%) among women aged may signify a reduction in the number of new infections however this need to be substantiated by trend analysis studies.” Appears to be a typo – aged (?)
Level of interest: An article of importance in its field

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests