Author's response to reviews

Title: Epidemiology of Human Immunodeficiency Virus-1 and Hepatitis B co-infections and risk factors for acquiring these infections in the Fako Health District

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Author's response to reviews: see over
Reviewer's report
Title: Epidemiology of Human Immunodeficiency Virus-1 and Hepatitis B co-infections and risk factors for acquiring these infections in the Fako Health District
Version: 4 Date: 28 July 2015 Reviewer: Trevor Crowell

Reviewer's report:
The revised manuscript addresses several points raised in the initial review. This research provides prevalence estimates of HBV and HIV among individuals presenting for voluntary counseling and testing in Southwest Cameroon. The authors also investigate associations between various risk factors and each of these diseases. The statistical methods used for this analysis could be improved. The discussion section of this manuscript could be substantially expanded.

Major Compulsory Revisions:
1. Line 171. The authors state that injection drug use and blood transfusions are known risk factors for both HIV and HBV. Although these data were collected, they do not report rates of injection drug use in Table 1 nor was this included in any reported statistical model. This information should be reported and explored in statistical models. Even if not associated in the authors’ univariable analysis, the authors should consider including injection drug use and blood transfusions in multivariable models based on prior knowledge of their relevance.

Although blood transfusion is a known risk factor in studies of other populations, it was not significant in the population with which we were working. In the univariate analysis, blood transfusion status was not significantly associated with HIV or HBV virus so it was not included in the final model to preserve degrees of freedom.

Only 1% (8/761) of the study population were injection drug users, so there are too few incidents to affect the results.

2. Methods. The authors divide all population characteristics into binary variables in order to perform logistic regression. This is unlikely to be the most robust model. Continuous data like age and lifetime sexual partners might be better explored using more granular categories. Religion should be explored using a single model, rather than separate models for each individual religion. If income was recorded as one of four categories in the questionnaire, why not use these same categories to model that variable?

We acknowledge that different levels of measures could be used for each of the variables and we believe using a binary split and having a larger sample size in each group, for all variables, is an appropriate approach to our research question.

3. Tables 2 and 3. The reference category for each variable is unclear and ordering of the categories is inconsistent. Reordering the categories so that the reference category is always first would be helpful, as would be some explanation of the reference category within the table or a footnote.

Thank you for your astute observation about the lack of clarity in the tables and
regarding reference categories. The tables have been revised and the reference category always appears first. This convention is noted in the foot note.

4. Tables 2 & 3. The numbers do not add up consistently throughout the tables. In Table 2, there are 81 HIV-positive individuals, but only 26 males and 54 females (80 total) are reported and 59 low income and 17 high income individuals (76 total) were reported. Other categories do not add up to 81 as well. If this is due to missing data, wholly or in part, that should be explained.

In the manuscript, we mention that, “Students and housewives were excluded from income level analysis as they had incomes of zero, which was not necessarily representative of their socioeconomic statuses.”

We have also explained in the limitations section of the Discussion that some data points are missing. This has also been added as a footnote to the tables.

5. Tables 2 & 3. It is not clear what is represented by the numbers in parentheses in the “HIV positive” and “HBV positive” columns. Please clarify.

Corrected

Minor Essential Revisions:

1. Line 119. Change “based of past studies” to “based on past studies.”
Corrected

2. Lines 119-121. The tense here moves from past to present. A consistent tense should be used throughout the manuscript.
Corrected

3. Line 130. The sentence should begin “The study was conducted...”
Corrected

4. Line 141. Change “designed” to “designated”.
Corrected

5. Line 171. Change “tests kits” to either “tests” or “test kits”.
Corrected

6. Line 234. “The line should read “low condom use was associated with increased risk...”
Corrected

7. Line 271. Change “we have little information” to “we have no information”.
Corrected
8. Line 282. Change “...rate on homosexuals...” to “...prevalence of homosexuality...”
Corrected

Discretionary Revisions:

Throughout the manuscript, percentages are reported to two decimal places. This suggests a level of precision that does not really exist with this sample size. The authors should consider reporting to a single decimal.
We feel that a sample size of nearly 800 is sufficient for this precision

Level of interest: An article of limited interest 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 that I have no competing interests