Review of: "Prevalence and Factors Associated With Non-communicable Diseases Among People Living With HIV at Kalisizo Hospital in Kyotera District, Uganda: A Cross-Sectional Study"

Peter Olds[1]

1 Harvard University

Potential competing interests: No potential competing interests to declare.

To the authors:

Thank you for your submission, as this is a truly important paper. We desperately need studies evaluating NCD risk in populations where such work has yet to be done, especially in areas like rural Uganda. I have added some comments below that I hope will be helpful and look forward to a follow-up draft of this work.

ABSTRACT

Background: Please re-write this first sentence, as it implies that rural Uganda doesn't have access to this data.

Methods: This needs to be more precise on exactly what patients you were selecting. Were these hospitalized patients? Or those seeking care in the outpatient clinic?

Results: I might break down what the prevalence was for each NCD, especially since you are not looking for all NCDs, but only a select few.

Please put your variables in order of impact. For example, the aPR for obesity is the highest, followed by unhealthy dietary habits.

Conclusions: It might be nice to have something more specific here as an action item. Are there tailored interventions that your team is thinking about? Where is the most need? In diagnosis? Treatment? Lifestyle changes?

INTRODUCTION

While the introduction does a nice job of explaining why there are higher levels of hypertension and diabetes, it does not note why depression might be higher in this population. The pathway is likely very different from cardiovascular and metabolic disease.

I think what needs to be addressed in the introduction is why you chose these specific NCDs and not others. You mention in the last paragraph that T2DM is the least common NCD in PLHIV, which begs the question as to why it was included.

NCDs are an incredibly diverse and broad category of diseases. I think that it makes much more sense for you to argue that you're looking at 3 specific NCDs and structure the title and paper that way. Saying "NCDs" is misleading as the reader might be thinking of cancer, respiratory illnesses, etc.

METHODS

Study design, settings, and population: Most readers will not know what health center II/III/IVs are. If you include this detail, please provide an explanation.

The last paragraph of this section goes under "inclusion criteria."

Data collection: Please include your data collection tools and questionnaires in Supplemental Materials.

As you likely know, income assessment does not really give a good sense of property and wealth. Often, household asset assessment is more accurate in populations that aren't entirely cash dependent. If you have it, including asset assessments, along with your income variable, will add strength to your study.

While WHO staging is a good marker of HIV progression, more objective markers will make your study more applicable outside of your hospital. Namely, do you have patient CD4 counts, PCRs? Additionally, total time on ARVs and % of time with viral suppression would be nice to include, especially since your introduction makes the point that inflammation from the virus and time on ARVs predisposes for NCDs.

Please include a co-linearity assessment in your methods for your linear regression model, especially since many risk factors (income, education, BMI) might be linked.

RESULTS

The tables have different variables in them, which is quite confusing. You should include all your independent variables in each table so we can see their respective PRs. For example, why is education level only included in your final table?

Combining these 3 NCDs in one regression is problematic, especially since 88% (101/115) of patients with these diseases had depression, likely skewing results towards factors associated with depression. Additionally, your patients might be feeling more depressed because they have T2DM or HT in addition to HIV. I would recommend having "diagnosis with T2DM/HT" as a variable in your depression regression analysis.

I would recommend separating your analysis into two regressions: "cardio-metabolic disease" and "mental health", as this will help reduce your confounders. This goes back to your introduction, where there is an inflammatory/diet pathway for T2DM and HT, but you don't propose a pathway for depression in PLHIV.

DISCUSSION

Again, please put your factors in order of strength of association and include their percentages in the text.

Citation 47 only looked at T2DM and HT. You cannot make comparisons to this paper when including your numbers of

depression diagnoses. You likely had far lower prevalence of T2DM/HT than their study. Citation 7 looked at 4 large groups of NCDs (cardiovascular diseases, cancer, chronic respiratory diseases and diabetes mellitus). This highlights that you are unable to state in this paper that you are looking at NCDs broadly. I highly recommend you rework this paper to state that you are focusing on 3 specific diseases and then compare each disease with appropriate citations (i.e., rates of HT in your study to rates of HT in other studies, not NCDs broadly). This will give you space to expand the paragraphs where you compare rates of T2DM/HT/depression in your study with other studies.

The last sentence of the paragraph starting “The prevalence of HT” is incomplete.

In your separate paragraphs for T2DM/HT/depression, it would be nice to have more local context from the authors. In addition to limitations in your study design, what insights do you have from working in your region that help explain these differences?

There is significant work done on educational level and depression. Please include some discussion of this literature and how it applies to your setting.

Study strengths: Please also include that this is the first work of its type done in your region. Highlight how important it is to have local research for your local population.

Study limitations: Please describe more of your limitations in diagnosing your NCDs. While the PHQ-9 is a good screening tool, it is not diagnostic. Additionally, all your blood pressure readings were done on the same day, and you used fasting blood glucose, rather than hemoglobin A1c, which has its limitations. Also, you didn’t include more objective clinical data, like renal function, systemic inflammation (CRP/ESR), lipid panels, that would help inform risk for T2DM/HT. Additionally, depression is a complex and multi-faceted disease, and its risk factors are numerous. It isn’t clear that your questionnaires addressed true risk factors for depression.

Finally, please include that this was a small study at 1 hospital and therefore has limited generalizability. This can be an opportunity in your Conclusion to say that a larger study, at several sites, would allow for a more robust evaluation of PLHIV in rural Uganda.