Reviewer’s report

Title: Impact of alcohol use disorders on antiretroviral treatment adherence and quality of life outcomes in injection-driven HIV epidemics

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Reviewer: Anh Ngo

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Reviewer comments

This study attempts to investigate the impact of alcohol use disorders (AUD) on antiretroviral treatment adherence and quality of life outcomes of HIV patients receiving ART in Vietnam. However, what the study can offer is a description of the cross-sectional associations between AUD and these two outcomes using self-reported data obtained from a convenience sample of HIV infected patients in Vietnam. The findings indicate that AUD was associated with a higher prevalence of non-adherence and with a decrease in the four out of five dimensions of patient self-rated quality of life. The study also compared the strength of associations between drug using and non-drug using patients. While the study addressed an important issue in relation to ART treatment outcomes in settings where there is a high prevalence of hazardous alcohol use, the study had major methodological flaws due to selection bias associated with convenience sampling. Unless the issue of selection bias is adequately addressed, it is difficult to judge the validity of the observed associations and draw a conclusion and intervention implications from the study. I have made the following suggestions for the authors to consider in improving the paper given the weak study design and limitations of the available data. I strongly believe that the authors can further address methodological issues and then the paper can be considered again for publication. Furthermore, the paper will need to be proofread and edited by a native speaker as there are a number of grammatical and typo errors, plus awkward expressions.

Major compulsory revisions

Title and abstract should be reworded avoiding the use of “impact” given this is an observational study using a cross-sectional design based on a convenience sample.

Introduction

• Literature review: The literature review should be expanded to review existing literature that documents the adverse effects of AUD on ART adherence and quality of life outcomes in other settings and possible mechanisms if there is limited or lack of literature available in Asia and Vietnam as noted in introduction. Also, the review should explore if there is any previous study(ies) that found the
effects of AUD on the above outcomes differ in drug using patients compared with non-drug using patients. Because there are a range of factors that can affect adherence and quality of life of HIV patients receiving ART services, the authors should document other factors that have been established in previous studies and explain why the paper only focused on AUD.

• Aims: In line with comment on the title above, the study aim need to be reworded avoiding the use of: “impact” (paragraph 3, page 1). Study hypotheses should be stated here, including a hypothesis on differential effects of AUD by drug using status (paragraph 3, page 3).

Methods

• Study design and participant recruitment. A brief description of sampling methods is required regarding how clinics were selected and why convenience sampling was employed. This information will help understanding of the extent to which the sampling methods and selection bias would affect the validity of the observed associations.

• Measure and Instrument should be described separately for outcome, key independent variable(s), and covariates and how each variable was expressed in the statistical analysis (e.g., continuous, dichotomous, ordinal, etc.).

• Statistical analysis. The description of the statistical models was unclear and confusing (paragraph 2, page 5). At minimum, the authors need to specify what covariates being included (or not included) in the models to compute propensity scores, and subsequently in logistic and linear regression models. Due to this deficiency, the use of propensity score vs. conventional regression methods is not entirely convincing. What computer statistical package was used to perform analysis?

• The author presented findings in drug users and non-drug users, but the analysis stratified by drug using status was not mentioned in the methods. Furthermore, the authors need to clarify whether the computation of propensity scores was also stratified by drug using status.

Results

• The description of the study sample is confusing in terms of whether the sample available for statistical models, at the time of data collection, contained patients on ART only or both patients on ART and not yet on ART (paragraph 2 page 7). Definition of drug using patients is also required (e.g., former/current drug users).

• What statistical test(s) were used to compare data across patient groups as presented in Table 1.

• As described, the duration on ART varied significantly among study participants so did the prevalence of hazardous drink. However, there was a lack of statistical analysis to determine if the relationships between AUD and the two outcomes differed by duration on ART. This analysis is also needed for binge drink.

• It was not reported whether the difference in the effect sizes and odd ratios between drug using and non-drug using patients was statistically significant or
not.

• What are other factors that were also significantly associated with the two outcomes in multivariate regression models? These should be reported in the texts.

Discussion

• Findings should be discussed in line with methodological limitations before drawing implications for intervention. Discussion on limitations should be more explicit, highlighting how these limitations could have introduced bias in the observed relationships. The authors should provide readers with arguments to maintain that findings remain valid (at least to a certain extent) despite methodological limitations including the comparability of the findings with previous studies that used a stronger study design and biological plausibility of the observed associations. To assess the extent of selection bias due to convenience sampling, descriptive data on key variables (e.g., proportion of drug users, prevalence of AUD, or key sociodemographic characteristics) should be compared with similar statistics derived from a representative sample of HIV patients receiving ART in Vietnam.

• The finding that the observed effect sizes/associations were stronger in non-drug users is interesting. However, it is unclear from discussion about (possible) underlying mechanisms that shape this gradient, particularly in relation to Vietnam social, cultural, and HIV epidemic contexts. Also, the discussion needs to highlight, in the light of existing literature, any difference in the effects of AUD in the context of an HIV epidemic driven by drug injection compared with an epidemic not driven by drug injection.

• Discussion on the positive association between binge drink and improved social dimension of patient quality of life was confusing as it reads like: ART leading to improve patient quality of life and then leading to binge drink. This pathway contradicts with what the paper attempts to explore (e.g., effects of binge drink on quality of life). Similarly, discussion regarding social functioning is unclear and thus not convincing. Did the authors mean that economic difficulties or perceived stigma are more severe in patients with AUD, leading to poor social functioning? (Paragraph 1, page 9).

• Intervention implications and conclusions need to be revised taking account study limitations. The findings should be considered as preliminary evidence to suggest the negative effects of AUD on adherence and quality of life in patients receiving ART in Vietnam. As this, what should be future studies to delineate/confirm the observed relationships?

Minor Essential Revisions

• What was the sample size (n) for each statistical model presented in table 2? Were samples constant or varied due to missing data in one or more of covariates?

• There are 2 figures (1a and 1b), but the texts referred to as figure 1. The presentation of figures using line graph easily confuse readers with a
presentation of longitudinal data. As data were already presented in Table 2, these figures should be removed.

• Define “suboptimal adherence” if this is not non-adherence, otherwise use non-adherence for being consistent (paragraph 2, page 7)

• Write in full the data range instead of putting data in bracket ([ ]) to avoid confusion with reference number: e.g., raged at [4; 20] (there is a typo error here as well) (paragraph 2, page 6).

• Provide reference for Tobit model (paragraph 2, page 6).

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: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

None