Reviewer's report

Title: Adherence to Antiretroviral Therapy among HIV Infected Children in Mekelle, Ethiopia

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Reviewer: Sibhatu Biadgilign

Reviewer's report:

It gives a great pleasure to review this important topic.

It is an interesting research area that needs to be investigated. The research is coming from sub Saharan country with a limited research opportunity in particular on pediatrics HIV/AIDS topic, it bears a due attention.

Background

Please update the figure from UNIAIDS/WHO report

Missing of appropriate reference in each of the concluding statement

Focus has to be given on the narration of the adherence scenario not merely on the death of children.

Need more strong evidence to focus on the children. Still a lot of work remaining in the introduction section.

Method section

It is one of the areas that the authors made confusion while they include the study subjects should receiving continuous antiretroviral therapy for the last 8 weeks. In assessing pediatrics adherence, it is advisable to put the patients more than 3 months to assess.

The sample size calculation is vague to consider and the author did not use the stated reference for sample size calculation. So Ref. #10 the study is not from Ethiopia that gave adherence rate of 86.9%. totally misleading on the calculation.

Are the authors uses a standardized question for this study?

What proportion of the study subject are undergo for the standardized questionnaire for pre testing?

Amend the statistical analysis for the logistic and cross tabulation?

The author mentioned in ethical consideration part as the study subjects are illiterate/semi-literate for written informed consent. How do you know that during data collection period? Not all of them are illiterate so how do you assure then after? Even the data clearly state Sixty three (32.6%) of the caregivers were illiterate. It is critical not to put something unnecessary.

Even what do you mean by semi-literate? Use appropriate word when ever your report.
The author mentioned that the data is collected in front of health professionals at ART Clinics. It seems you are breaking the ethical issue that meant to assess the adherence level and other factors asked by the interviewers. This has a serious issue on the response and allied concern.

Results
How do you clarify the Age of child? Based on what?
What is the mean and SD of the age of the child?
Why only Amhara and Tigray Ethnic group in this study?
On Medication adherence pattern, the author mentioned only seven day adherence rate. What about the 3 days and 30 day adherence rate?
How do you that the pill has a bad taste of medicine? being depressed? It needs a clear interpretation of the data and meaning.
There is a need to re-write the factor associated with adherence. How any variables are entered in the model in bivariate and multivariate analysis.
There is a need to consider some many factors that affect adherence apart from parents and medication aspect.
Need of further statistical analysis on the multivariable analysis to control confounding variables including program, clinical parameters and health care provider variables.
Need to see other variables of clinical parameters like hemoglobin, WHO staging of children, anthropometric variables which this study misled the interpretation of the finding.
Some variable not significant in bivariate analysis were entered int the model of multivariable that make confusion unless it is stated in the method or result section earlier.
Tables need clarification. It seems redundancy between table one and two.
Please add the exchange vale under table 1 for income.
Better to use graph to display the reason of missed dose and remove table 2 as a table.
Discussion
Need further explanation and it should be short and precise on the writing of the discussion section.
Don’t repeat the result section in the discussion.
There is a need to exclusively re-write the discussion section as there are a lot of adherence paper conducted in sub Saharan Africa countries.
Need some revision on the limitation section. The authors need to merge in idea in to one statement.
Other literature need to be revised on the comparison and similarity of the finding in this study.
The recommendation should be based on the finding of the study not merely speculative from other studies.

In the acknowledgments section, who will fund the study? about the respondents?.....

Reference

Need to revise the order of the reference with the content e.g. Ref#10 is not there in the sample size calculation and many other places.

**Level of interest:** An article whose findings are important to those with closely related research interests

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

**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