Reviewer's report

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

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Reviewer: karthikeyan paranthaman

Reviewer's report:

• Major Compulsory Revisions

• Abstract
  o Background - Results in the manuscript shows that only a handful of infants were part of the study. It may be better to state that the study was aimed at assessing adherence in children (and not mention infants specifically).
  o Methods – The questionnaire also included factors relating to adherence and non-adherence.
  o Conclusions – Given that the majority of caregivers are likely to parents (especially mothers in reproductive age group), the conclusion that age 25-44yrs and marital status is associated with adherence is not surprising. The authors should highlight more meaningful findings from the study. For example, a key finding is confirmation of high adherence among children taking ART in this setting.

• Background
  o First paragraph – The epidemiology of HIV in children is less important for this paper, than the factors associated with adherence and non-adherence. A brief overview of published literature on this particular context would be more informative.
  o Third paragraph – A reference would be appropriate for the statement ‘there is a direct correlation between risk of virologic failure and proportion of…”

• Methods
  o Study setting – Information on the nature of the hospital, patient population and catchment may be more relevant than geographic details, i.e. numbers of children receiving ART in each hospital, public or private hospital, ethnicity of catchment population, deprivation, etc.
  o Study design and participants – The inclusion and exclusion criteria could be better phrased.
  o Measurement – this may be retitled as ‘definition of adherence’ or something similar. Why the authors used self-reported adherence is the previous seven days is unclear. A reference validating this measure would add value to the methodology chosen.
o Data collection – This may be retitled as ‘questionnaire design’. It may be useful to briefly explain how the questionnaire was developed. Did the authors develop this on the basis of a literature review? If not, then how.

o Data collection - it would be good to comment on whether the questionnaire had any open ended questions that allowed exploration of factors not included in the questionnaire.

o Ethical considerations – I am unsure about the consent process. Was a study protocol prepared for obtaining ethical approval? Did the study protocol specify how consent should be obtained? If yes, did the authors comply with the study protocol? If the actual consent procedures did not comply with the protocol, was this reported to the approving authorities?

o Other – who conducted the interviews? Were they trained in doing interviews? Was this held in the open clinic room or a private room? How long did the interviews take to conduct (on average)? Was ART provided free of charge?

• Results

o General – the results do not appear to follow the three parts of the questionnaire.

o Socio-demographic characteristics – The respondents are caregivers and not children. Age – please give mean age and IQR. Is it true that a quarter of caregivers were non-biological parents or did the authors include grandparents, relatives and guardians in this category? Please convert 500 ETB to USD. Average income would also be useful. Did the authors explore the HIV status of the caregiver and if yes, were they were adherent?

o Medication adherence pattern - The section would benefit from a rewrite to pick out the key results without repeating the data provided in Tables. For example, did adherence vary between male and female children? Factors relating to non-adherence may be moved to a separate paragraph.

o Factors associated with children adherence to ART – Re marital status, it may be that children of divorced parents are more likely to be non-adherent.

o Tables - The tables may be split in to characteristics of children and caregivers. Did the authors measure the duration of ART?

o Tables - The reasons cited in Table 2 may benefit from rephrasing. Does this info relate only to non-adherent children or all children in the study?

o Multivariate analysis – did the authors exclude data from non-adherent children from this analysis?

• Discussion

o General – the authors could better emphasise new findings from this study and compare them with published literature.

o The finding that caregivers being married or unmarried, and of the age 25-44 yrs is associated with adherence leads to the conclusion that being divorced and of the age outside of 25-44 yrs is a strong factor in predicting non-adherence and
hence targeting interventions for improving adherence. However, the numbers are relatively small and hence this finding should be treated with caution.

O I am unsure about the comment re role of healthcare providers not being important for adherence. This is unlikely to be a valid finding as almost all other studies on adherence among children taking ART in resource-limited settings have confirmed the role of healthcare services in supporting adherence.

O Further discussion on key factors influencing non-adherence and how these might be targeted by healthcare providers would be useful.

O Limitations – the authors have not explored in depth medication related factors as a key determinant of adherence, i.e. frequency, syrup formulation, palatability, etc.

• Conclusions

O The authors might want to comment on the key factors associated with non-adherence in this setting. We have a wealth of knowledge on factors relating to adherence and non-adherence in children taking ART. Further studies focussing on interventions to improve adherence may be a better use of limited resources.

**Level of interest:** An article of limited interest

**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.