Reviewer's report

Title: Health and socioeconomic impact of HIV/AIDS on South African households: cohort study

Authors:

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Reviewer: Dr Mark Colvin

Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Other (see below)

This is a very useful study that fills an important gap in our knowledge and needs to be published. UNAIDS tends to quote the same, few studies on the economic impact of HIV/AIDS on households and none of these are from South Africa. This has always struck me as strange given the extent of the epidemic. Overall the study is sound, the methods used appropriate, follow-up rates excellent and limitations made explicit. However, the final article may benefit by taking the following issues into consideration:

1. There is no information on what the response rates were among people approached to participate in the study. This may seem of little importance because it may not be obvious how non-participation may bias the results. However, because there was a relatively large compensation paid to participants, if there was a high refusal rate, it may be that those that agreed to participate did so because the family tended to be already poor. The finding that the HIV affected homes were poorer than controls may be due to the impact of a case of HIV or due to a bias in how HIV affected homes were selected. The fact that affected household incomes did not decline over time also raises concerns that the families may have been poorer at baseline because of bias. If participation rates, from affected and unaffected homes, were high, then this bias will be minimal and for this reason I suggest that response rates among HIV affected and unaffected homes are reported.

2. It is not exactly clear how controls were selected apart from it being the "closest" unaffected neighbouring household. This is a form of convenience sampling and it would have been preferable if there had been a strict algorithm for how the control was to be selected. This would prevent any form of bias such as, for example, the field worker choosing a nearby house that looks a bit wealthier and where the field worker may be offered a cool drink or tea!

3. Potential control households were excluded if there was a case of TB or pneumonia present. This was done to reduce misclassification due to the inclusion of a home with a case of AIDS. However, because of this exclusion, the controls already started off a "higher" level of health in comparison to other homes. It does not seem appropriate to exclude certain causes of ill health in one arm of the study and then make comparisons about the extent of ill health. One way around this may be to compare the amount of illness between the affected and control homes after
excluding TB and pneumonia from both arms of the study.

4. It is unusual that only verbal consent was obtained and not written consent. Whilst I acknowledge that the Ethics Committee passed the protocol, the justification for no written consent should be explained as it is highly unusual for studies involving HIV to proceed with only verbal consent.

5. page 15 3rd para: why could HIV positive individuals in the affected households not be identified when they had been recruited and given informed consent? It was probable that the fieldworkers were blinded about who was infected but this should have been made explicit.

6. In regard to generalisability, the authors note that because all cases were drawn from one organisation, the results cannot be automatically generalised. Another qualifier to generalising the findings is that the participants had already gone to ATIC for HIV testing and are therefore probably not representative of all HIV infected people but more representative of those who are developing HIV-related symptoms.

7. The distribution of disease and cause of death among the HIV infected is similar to that reported from other sources including hospital-based studies and these comparisons may be worth making.

8. Finally, some specific points:
   a. Page 3, para 1: where has TB doubled? In SA or the FS?
   b. Page 7, para 2: if questionnaires were back-translated, state this.
   c. Page 12, para 2. As this journal is also read by non-epidemiologists, statements such as “There was no significant interaction between illness and affected status” should be explained in simpler English.
   d. Page 14, para1. I don't understand the last sentence about time lags.
   e. Page 15, para 1. Some discussion on why there was no increase in dependency ratio in affected homes from this study.
   f. Page 15, para2. last sentence - does this refer to Rwanda or South Africa.

**Competing interests:**

None declared.