Reviewer's report

Title: Changes in Sexual Behaviour among Young People associated with HIV Prevalence Decline in Zambia

Version: 2 Date: 11 October 2006

Reviewer: Anne Buve

Reviewer's report:

General

The paper presents very interesting data but I think it can be substantially improved, if the following comments are adressed:

As far as I understood the main message of the paper is that the decline in HIV prevalence in selected populations in Zambia between 1995 and 2003, can be explained by changes in sexual behaviour. A secondary objective of the paper seems to be to explore the mechanisms underlying the association between HIV infection and education, but only for the year 2003.

Answering the first research question (is decline in HIV prevalence due to behaviour change ?) is enough for a full paper. I suggest that the authors use the same statistical approach they used for unravelling the association between HIV and education, to explore the decline in HIV prevalence between 1995 and 2003. This would mean using year of the survey (1995, 1999 and 2003) as an explanatory variable for HIV and introducing various behavioural parameters into the model and explore how the association between HIV and year of survey changes. If the decline in HIV prevalence is indeed due to changes in sexual behaviour then the association between HIV and year of survey should weaken or disappear after introducing behavioural variables in the model.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. The introduction has to be revised (see also my comments above) and the objectives of the paper should be more clearly stated. If the main objective is to explore the mechanisms underlying the declining trend in HIV in Zambia then the introduction should not start with a short review of the literature on the association between HIV and education. The introduction should then concentrate on possible reasons for a decline in HIV prevalence and how other authors have addressed this issue. I miss for instance reference to the publications on Uganda and more recently Zimbabwe (S.Gregson et al. in Science).

2. Methods p. 6, second paragraph. I suspect age at first sexual intercourse is not normally distributed. Moreover, one can only calculate a mean on the people who have already had sex. A more appropriate statistical approach would be to calculate medians with survival analysis.

3. Methods p. 6, second paragraph. I miss data on marital status. Were respondents not asked about their marital status? Being married has been found to be a risk factor for HIV in several studies and age at first marriage is associated with educational attainment, especially in women.

4. Methods p. 6, third and fourth paragraph. Here the focus shifts from explaining the declining trend of HIV, to explaining the association between HIV and education, but only for the year 2003. If the authors follow my suggestion to explore the association between HIV, year of survey and sexual behaviour, then (in principle) they could explore whether educational attainment is an interaction term.

5. Results p. 8. I would like to see a table that shows by year, the HIV prevalence, the % of young people ever having had sex, the % of young people with 2 or more partners in the past year etc etc. It gives the reader a quick insight in the data and makes it easier to follow the results section.

6. Results, p. 8, third paragraph. There seems to be something really wrong with the data on condom use at last sex and condom use with the last casual partner in 1999. This issue is very briefly discussed in the discussion section, but I am afraid I find the possible explanations rather weak. Have any consistency
checks been done on the variable condom use? The data give me the impression that the questions of condom use with last casual partner and at last sex were not well understood by the respondents, but why was that then a problem in 1999 only? Has the questionnaire been changed?

7. Results, p. 9, second paragraph. Table 3 gives the data on ever given birth for the HIV negative women only. Please give the table for all women. And again, are there any data on marital status. I suspect most young women who have given birth are married or were married. The factor one really wants to look at is marital status.

8. Discussion, p. 13, third paragraph. My gut feeling is that the doubling of HIV risk associated with child bearing is actually due to the women getting married. Can you please check this? Also delay in child bearing may be due to delay in marriage associated with higher education.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. Methods and results. There is very little that is presented on the age group 15-49, so I would suggest to leave out any reference to that age group and concentrate on the young people 15-24 years old.

2. Results, p. 10, end of second paragraph. Is there a difference in HIV prevalence among "virgins" between the different years?

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Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests.