Reviewer's report

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

Version: Date: 22 October 2006
Reviewer: Basia Zaba

Reviewer's report:

1. Is the question posed by the authors new and well defined?
There is no question as such, this is a report about a descriptive study
2. Are the methods appropriate and well described, and are sufficient details provided to replicate the work?
Since there is no hypothesis to be tested the question about “appropriate” methods does not really apply. The authors reference earlier articles which are supposed to give more details about the fieldwork methods, it is not possible for me to chase up these references and comment on whether they give sufficient detail for replicability. I have noted below where I think that for internal consistency between results and discussion more information needs to be given in methods.
3. Are the data sound and well controlled?
The authors raise some questions about the validity of their data, which are very typical of the kinds of problems always encountered in sexual behaviour research. In my opinion they have not gone far enough in discussing the possible effects of mis-reporting on their conclusions about trends and associations. In the statistical sense they have correctly controlled throughout for age, and in the model shown in table 4 they have investigated the inter-actions between different kinds of behaviour with respect to HIV infection.
4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
I have no idea what the relevant standards are.
5. Are the discussion and conclusions well balanced and adequately supported by the data?
See detailed recommendations below. The main failing of the article is not enough critical appraisal of likely effects of reporting errors.
6. Do the title and abstract accurately convey what has been found?
Yes
7. Is the writing acceptable?
On the whole yes, but needs the services of a good copy editor. The worst ambiguities are listed under minor changes.

Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)
Drop all the stuff on first birth, it makes the article unfocussed and can only be dealt with in a very superficial way if it is limited to one figure and one paragraph of text.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
Rewrite abstract sentence:
“More rural than urban and less versus higher educated young participants reported sexual experience in 2003.”

Laboratory analysis
Give indications of sensitivity and specificity of saliva tests – other researchers have reported that these are unreliable.

Data entry
Give details of methods used – e.g. double data entry, entry with verification, optical scanning, etc. – especially if later speculating that data entry may have been bad enough to distort trends!

Data analysis
“Age adjustment was performed with a continuous age variable for the 15-24 age group, and a categorical for the 15-49 group.”

Explain the categorical variable – e.g. five-year age groups?

Figure 1
Label x-axis. Why does this figure show only males?
ORs and AORs
Please give both in the tables where these are quoted. In some cases (e.g. years of education) the adjustment clearly makes a huge difference (since those with 10+ years education won’t include any 15 and 16 year olds) and it is useful to show this for people’s understanding of certain effects.

Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)
Differentiate between prevalence and incidence
e.g. in the introduction it says “The best method to obtain indications of the effects of sexual behaviour change on HIV prevalence and incidence rate is to study how prevalence and sexual behaviour change in relation to each other in the same population [16].”
The only way to study incidence directly (i.e. without modelling) is to look at individual sero-conversion relative to person-years exposure of HIV negatives. The methods section does not say if this was done or whether it was possible – do the study participants have individual identification numbers that allow them to be followed (anonymously) from one survey to the next? If not, then delete all references to incidence measurement. In fact right at the end of the discussion it is finally admitted that the study design is a set of cross-sectional (i.e. unlinked) studies – this needs to be stressed right at the beginning in methods section.

Selection and participation biases
Mention what characteristics were associated with interview refusal, with absenteeism, and with refusal to provide saliva samples. Did these change from one survey to the next? How did age structure of sample change between surveys? Were there other structural changes?

Pay more attention to reporting and sampling biases
page 10, results section says:
“Interestingly, a comparison of the proportions that in 1999 and 2003 reported early debut, shows clear changes in reporting for men and young women. In 1999, 22% of female and 34% of male 15-19 years olds reported sex before age 15, but 4 years later, in 2003, 11% of female and 19% of male 19-23 years olds reported the same (uncorrected chi square: p<0.0001).” The figure shown in supplementary document 17 shows that this reporting error affects all age groups among men, but only the youngest age group of women – why not comment on this? This is a massive change, and potentially undermines the interpretation of trends, as it either indicates that respondents were not giving true answers in one or other survey, or that the sample had changed so that the interviewed subjects were not the same people (e.g. because of migration). See additional ref on detecting the effects of this kind of reporting error. What about reporting changes in this variable between 1995 and 1999?

What about other “lifetime” variables – e.g. ever used condom, ever had casual partner, lifetime number of partners, ever gave birth, age at first birth … do they show logically consistent behaviour (increase, decrease or constant) when compared across members of same birth cohort interviewed in consecutive surveys? What about consistency between age at first sex and age at first birth?
Trends don’t have to be linear to be “true”
page 13 discussion says
“Such inconsistencies disturbing linearity in trend may indicate random variation between the surveys, changes in the sample due to migration, or data entry errors.” Is it conceivable that data entry was so bad that it actually distorted trends? What about changes in social desirability bias, enumerator training, questionnaire design, participation rates?

Effect of delay in first pregnancy
Bottom of page 13, discussion, says:
“Ever given birth was associated with doubling of the likelihood of being HIV infected, which supports the interpretation that delay of first pregnancy may be an effective preventive strategy [28, 30-34].”
Authors go on to discuss hypothetical contribution of abstinence, condom use and hormonal contraceptive use. If all these things were measured why can’t they report contribution of each to delay in first pregnancy? What about marriage? What proportion of first births occured more than 9 months after first marriage? What proportion within 9 months (presumably precipitating marriage), what proportion of births are pre-marital? What is association of HIV infection with these different timings? Please note literature on effect of years of pre-marital sexual exposure and years of exposure to sex after marriage.

Continuing to top of page 14 “There was a bigger reduction in the proportion ever given birth than in the proportion admitting having sex”
Give proportionate declines and say what ages this corresponds to
Figure 2: Why is it limited to HIV negative women? What is the relevance of this figure for the text as a whole?

Condom use
Page 14 says “Its use at last sexual intercourse is often used as an indicator of consistency, but has obvious limitations and may not give a representative picture of how many always use condoms.”
No, use of condom at last sex is often used as an indicator of frequency of use in the population, on the assumption that last sex is typical of all sex. Consistency of use can only be measured if questions are asked about use on more than one occasion. See ref on measurement of condom use.

Further refs that might be useful
Slaymaker E, Zaba B. “Measurement of Condom Use as a Risk Factor for HIV Infection” Reproductive Health Matters 2003;11(22):174–184

Supplementary materials
Surely these have to be alluded to in the text somewhere, or how will people know what is available and why? What is the point of all these extra tables, and why can’t they all go into one supplementary document?

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: Needs some language corrections before being published
Statistical review: No
Declaration of competing interests:
I declare that I have no competing interests