Reviewer's report

Title: Early sexual initiation, a risk factor of sexually transmitted diseases, HIV infection and unwanted pregnancy among university student in China

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Reviewer: Garrett Prestage

Reviewer's report:

This paper deals with a topic (age of sexual debut and risk behavior) that has previously been fairly widely canvasses, but has not been addressed in the Chinese context. While it does not add substantially to the issue broadly, it is a worthy contribution by extending this material to Chinese populations. However, the paper has some basic problems that need to be addressed.

Major compulsory revisions:

1. There is a problem commonly encountered with this topic - the confusion between age of sexual debut and length of time of sexual activity. This is alluded to by the authors but has not been properly addressed. In particular, when a sample has such a narrow age range as this one and is comprised entirely of young people, the prospect of confounding between these two potential factors is exacerbated. So, early debut would almost necessarily be expected to be associated with measures of 'ever' having engaged in sexual behaviors or 'ever' having had specific types of sexual partners. The data that concern these measures ('ever') contribute only marginally to the value of this paper and their association with early sexual debut might be simply stated as conforming to that fact, rather than being individually presented, thereby allowing the authors to concentrate on the more substantive recent behaviors.

2. In the methods, the authors indicate that they adjusted for duration of sexual life, but given the age of the sample, this was probably of limited value. This should be noted in more detail as the potential for confounding is such a significant factor.

3. In the presentation of results, there is considerable lack of clarity as to whether the authors are referring to reported of lifetime or recent behaviors and partners. If the authors persist with the presentation of lifetime items then they need to word this much more carefully.

4. There is a problem with the way the analysis is described. At the end of the presentation of the results, the authors indicate that partner number and partner type did not survive the multivariate analysis, although the description does not make it clear they are referring specifically to recent partner number, as well as recent partner type. In the discussion on page 13 the authors suggest that this is important to their argument, but it appears to rely on lifetime indicators rather than recent indicators. Also, the authors have not indicated why reduction in partner number or of non-regular partners is necessary.
5. There is no indication that any measures of sex education were considered, and presumably, given the rapid changes occurring in China, such education would be subject to considerable change over time, especially in recent years. In the concluding statements the authors argue that delayed sexual debut should be a focus for sex education in China. However, it is not at all clear whether respondents had actually received any sex education, and whether this had any impact on the findings. Indeed, it might be argued that a narrow focus on delayed sexual debut may be less effective than an intervention that incorporates sex education that covers a broad range of issues. The authors should at least note this tension.

6. In the discussion the authors mention that there were substantial problems with missing data, but this was not reported in the methods. It should be reported including some mention of if and how it might have affected the sample and the analysis.

Minor essential revisions:
1. There are grammar and expression problems throughout the paper, which may account for some of the problems in the clarity of the argument. The paper should be properly proofread and edited.

Discretionary revisions:
1. In the discussion, the authors note that there was a problem with the way that duration of sexual life was calculated, with a large number having a zero value. This surely could have been resolved by a different method of calculation, such as number of months, or if that was not possible, by somehow assigning a notional value to those less than 1, and re-valuing the higher numbers accordingly. This method may have been preferable to losing a substantial, and very particular, portion of the sample from the analyses.

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’