Reviewer’s report

Title: The characteristics of mixing patterns of sexual dyads and factors correlated with condomless anal intercourse among men who have sex with men in Guangzhou, China

Version: 1 Date: 08 Feb 2019

Reviewer: Oliver Stirrup

Reviewer's report:

INTRODUCTION
"the newly diagnosed HIV infection rate among MSM increased from 0.9% in 2003 to 7.75% in 2014" - from the text alone it is not clear what these numbers represent, but it reads as if this could be the annual incidence of new diagnoses. Checking the reference Abstract shows that the numbers given are actually for HIV prevalence (the word 'rate' should not be used).

METHODS
"The HIV incidence rate among MSM in Guangzhou has significantly increased from 5.0% (19/379) in 2008 to 11.4% (72/633) in 2013". Again, this is the HIV prevalence, not 'HIV incidence rate'.

"Participants stated whether they had had condomless insertive anal intercourse without using HIV-PrEP (Pre-Exposure Prophylaxis) with sexual partners in the past 12 months." Do you have any data on PrEP use?

"We used robust generalized estimating equations (GEE) to analyze the relative CAI risk factors in this paper using correlated dyadic data clustered among the respondents". GEEs are always used alongside a generalised linear model, and the details of this should be stated as well. I assume from your results that the model used was logistic regression (i.e. from the fact that you report odds ratios), please specify throughout.

RESULTS
I do not understand the percentages presented in Table 2, please specify exactly the numerator and the denominator for each value given. It may be helpful to give summary statements for one or two examples in the text to make it easier for the reader to follow.

UCAI is not defined in Table 2

For the GEE analyses (i.e. the results in Tables 3 and 4), were all factors analysed together within a single model, or was each factor evaluated separately? This is not clear at present.

The term 'relative risk' should not be used when describing odds ratios.

Please add confidence intervals to the results in Table 3.
You do not report how the probability of CAI varies according to respondent characteristics, did you look at this? This could be as or more important than the associations linked to partner characteristics.

I understand that there may be some subtleties of translation, but would 'Ways of making friends' be better as 'Method of meeting sexual partners'.

DISCUSSION
The sample size of older men (>=41) is smaller, and so lack of statistical significance for comparisons could just be due to lack of power. This should be mentioned as a limitation.

"Ethics approval and consent to participate", this information is given within the main text and should be included here.

"Availability of data and materials", the authors do not seem to have provided the raw data for their analyses. I am not sure of the journal's policy on this.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review? If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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Please indicate the quality of language in the manuscript:

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