Reviewer's report

Title: High prevalence of HIV infection and unprotected anal intercourse among older men who have sex with men in China: A systematic review and meta-analysis

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Reviewer: Carla van Tienen

Reviewer's report:

This is an interesting meta-analysis on the HIV prevalence in older MSM in China. It is important for public health matters in the large ageing population of China and there is little English literature on this topic and the Chinese language articles are included in this meta-analysis, which is excellent. However, the analysis has quite a few issues that need to be addressed first and the authors make conclusions about the data that cannot be made.

Major Compulsory Revisions

1. For a systematic review and meta-analysis, a protocol describing the exact methodology of searching for papers, in- and excluding papers and extracting data is crucial. Was there a protocol in place for this study? If yes, please provide the protocol in an appendix to this paper, if not, please explain in more detail what methodology was used. I recommend using the PRISMA guidelines for conducting and reporting a meta-analysis (http://www.prisma-statement.org/statement.htm). It is much more detailed and includes many more items than the QATSO score that the authors use. This would take away many issues that are now unclear in this paper and that need to be clarified.

2. Please add a link to at least one of your saved search strategies in one of the databases that was searched. Also, please add the last date when you performed your database searches. In this way, readers of this paper can repeat the search.

3. Please describe in Table 1 what laboratory methods were used to confirm HIV and syphilis infection. For example, in the study by Liu MH, 2005, it is noted that detection of HIV antibodies in urine was used to diagnose HIV infection. This is not a valid way to determine HIV infection and therefore this study should have been excluded. The authors have to describe the laboratory tests that were used in the original papers.

4. Please explain in Table 1 what the abbreviations are for the different sampling methods plus explain what these methods entail.

5. Please add a table which assesses the quality of the included studies so the authors get more information about these studies. For example, now it is not
clear what the exact population was that was studied in the different papers, it is not clear whether there was a random sample taken or not and therefore it is impossible to assess any potential bias in the studies for the reader. Assessing potential bias is crucial in a meta-analysis and is not possible in this format.

6. Please give an exact description of how prevalence data were pooled in the Methodology section.

7. The prevalence data in Table 1 differ from the prevalence data in Figure 2. E.g. there are 5 studies in Table 1 where HIV prevalence is reported as 0.00%, yet in Figure 2 one of these studies has a prevalence of up to 10% (Feng F, 2009). This has to be corrected and the meta-analysis repeated if necessary. Also, please use the same units for reporting the prevalence in text, tables and figures; it is confusing for the reader now.

8. In the Results section under Study selection it says 59721 younger MSM were identified. Please clarify how this was done. I assume these data come from the same papers that were included in the meta-analysis, but it is not clear from the text or tables. Please include in Table 1 the number of young MSM that were studied in these studies and give HIV, syphilis and UAI prevalence for these men.

9. There is no mention of Antiretroviral treatment (ART) in the paper. The authors should comment on ART in China in general and specifically in MSM. It is crucial for public health interventions, individual care of HIV infected persons and for the spread of HIV. Also, if many MSM have been on proper ART for a long time, this could contribute to a higher prevalence among older MSM as they just age with their infection.

10. The first paragraph in the Discussion section makes very strong conclusions based on this meta-analysis. More emphasis should be put on the limitations, e.g. very small sample sizes of many studies and probably also bias in some studies. After revision of this paper, perhaps the conclusion might be additional, larger studies with random sampling might be needed?

- Minor Essential Revisions

1. In Figure 1 in the box that starts with 3589, it should state NOT fulfilling the inclusion criteria.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

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