Reviewer's report

Title: A cross-sectional study of HIV and syphilis infections among male students who have sex with men (MSM) in northeast China: implications for implementing HIV screening and intervention programs

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Reviewer: Tobi Saidel

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Comments coded as:

DR (Discretionary Revision)
MER (Minor Essential Revision)
MCR (Major Compulsory Revision)

Background

Para 1:

o For a paper addressing China, maybe the opening paragraph (about MSM in the USA) might not be such a helpful point of comparison. DR

Para 2:

o The studies found that a range of 27.9-72.3% of MSM were college educated. This is a very broad range (without knowing who these studies were done on). What proportion of students is men who have sex with men might be the more relevant question? DR

Para 3:

o 3.7% - 10.3% of male college students report at least one episode of sex with another man. If any of these papers qualify what “episode” means or whether this is “ever” or in the past year, it would be helpful to discuss because size of the population is so key and this is really the only reference to size of the population in the paper. DR

o There seems to be conflicting information. First it says that “Students accounted for 3.76% of newly reported HIV cases between Jan1, 2009 to May 31, 2010. But later in the same paragraph it is reported that 1.37% of infections were among students in 2009. Can these both be true? Might this be a function of the number of students tested relative to other groups tested? DR

Para 4

o It is only in the last paragraph of the introduction that the reader learns that this
study is about Liaoning. It might be helpful to put it earlier so that there is more of
a context for the introduction. MER

Methods

Para 2

o Was there a particular reason for having participants recruit their sexual
partners? This is not a random design of course, so there is no question of
reporting “prevalence” or generalizability. But having people recruit their partners
makes it more likely that you capture “co-infection” or “co-uninfection” MER

Para 4

o This statement is not clear - Why would you again do RPR on TPPA positives
when TPPA was confirmatory for RPR positives?

“Serum specimens that were positive for RPR were confirmed by Treponema
pallidum particle assay TPPA (TPPA, Serodia, Japan), positive TPPA cases
were also tested by RPR. Subjects with serum positive for both TPPA and RPR
were determined to be currently infected with syphilis”. MER

Results

Para 3

o Instead of median number of male sexual partners in the most recent 6
months, suggest it that you group these by numbers of partners (e.g 1, 2-3, 4-5,
>5). That will be more informative. MER

o Suggest defining “regular” male partners since most of these men are young
and unmarried. So then what does regular mean? MER

Para 5

o Sentence below is not clear.

“Several study participants (n=25, 5.7%) knew that their male sexual partners
were infected with HIV, while 138 (31.7%) declined to used condoms with their
regular male sexual partners even if they knew their regular male sexual partner
was infected with HIV”.

There are two ideas mixed here that would be helpful to see separately (one is
knowing your partner is infected and the other is using a condom). Suggest your
report separately the proportion who did not use condoms among those who
knew their partner was positive? MER

Para 6

o Maybe you can say that these factors were “associated with” being HIV
positive, as opposed to being “risk factors”. Many of these factors (e.g. family
knowing sexual orientation, receiving information from doctors, etc. are not “risk
factors” for HIV. It’s only the cross-sectional nature of the study (and the inability to understand the temporal relationship) that produces this “counterintuitive” result. Inconsistent condom is a risk factor, but you would not be able to demonstrate that from this design because you don’t know when the person became HIV positive (relative to becoming a regular condom user). MCR

Discussion

Para 2

o Since the term “significant” suggests a statistical test you might choose another word DR

Para 3

o Suggest you use the term “report” i.e. male college students report engaging in sex with men DR

Para 4

o This comparison with parents in the USA is not clear. What is the connection? What is known about the relationship between parents knowing sexual orientation and likelihood of HIV infection in the USA that makes it important for you to raise the point here? MER

Para 5

o The concept of “risk factor” appears to be confused with association. In a cross-sectional study an association does not imply causality. MCR

Para 6

o What association did you “expect” to find here? As you point out, the cross-sectional nature of this study makes it not “conducive” to this type of analysis. MCR

Para 8

o What is the significance of knowing that those who bleed after anal intercourse are more likely to be HIV infected? What does it suggest? How is it helpful? DR

Also, do you want to say that condoms with water-based lubricants reduce the bleeding? Or they reduce the risk of HIV transmission associated with bleeding? (Or both)

Para 10

o The first limitation mentioned is that “This was a cross-sectional study and therefore temporal associations cannot be inferred”. So this then begs the question of why the analysis was done the way it was? (i.e. why the bivariate and multivariate regressions on HIV)? The cross-sectional studies are good for describing levels of risk behaviours known to be associated with HIV
transmission (e.g. multiple partners, unprotected sex with multiple partners, etc). The real value of this study lies in the documenting of high levels of risk behaviour in this population, along with relatively high levels of syphilis and HIV prevalence. These should be emphasized, rather than the detection of risk factors through multivariate modelling. The latter is not appropriate because of the temporal issues mentioned by the authors. If this type of analysis is to remain in the paper, it should be clearly described as “looking for associations” with the understanding that the associations may or may not make sense because of the temporal issues. So that limits their value as “explanatory” variables. MCR

Conclusion

Para 1 I think the conclusions are right (i.e. relatively high levels of HIV, and high levels of risky behaviour). I think the knowledge of sexual orientation being known to parents is not a factor that is worth highlighting, since there are no data in the paper to support whether this is a good thing or a bad thing. As far as illegal drug use being a risk factor, it is not shown in Table 3 that this is an independent risk factor, so it’s not clear whether/where it fits. Injection drug use is a proximate determinant for infection (i.e. it is directly causal). Non-injection drug use would act by possibly contributing to more risky sexual behaviour. So this link should be made clear if this is to remain in the paper. MCR

Tables – Table 3 is difficult to read. I couldn’t see what lines up with what so it wasn’t always clear which way the association went. MCR

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

Quality of written English: Acceptable

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