Reviewer’s report

Title: Syndymics of syphilis, HCV infection, and methamphetamine use along China’s east coast of Shandong Province with historical low HIV prevalence

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Reviewer: Geneviève van Liere

Reviewer’s report:

Review

This informative and interesting article describes HIV, syphilis and HVC prevalences and the type of drugs used in drug users in China by using biological samples and data from questionnaires.

Main comments

Compulsory revisions:
1. Manuscript needs revision by an english editor.
2. The manuscript would benefit from overall strengthening of the introduction, clarification on methods, more concise presentation of results.
3. Additional analyses of drug use and risky sexual behavior are necessary for the conclusion drawn by the authors.
4. This discussion/conclusion was not always based on the results of this study.

Background

Minor essential revisions

5. The sentences ‘However…in the country.’ and ‘Recent surveillance…in China’ contain the same message.

6. Move sentence ‘Synthetic drug abuse…HIV/other STDs’ to the previous paragraph between ‘Recent surveillance…in China’ and ‘The risk for…new infections’.

7. I don’t understand the sentences ‘New type drugs have just been sporadically reported in the news media’ and ‘little is known about the types of new drugs’ Which are the new type drugs? MA? According to the first paragraph it seems synthetic drug abuse (MA) has increased dramatically.

Methods

Major compulsory revisions

8. It is not clear which potential participants were recruited. Drug users? What
type of drug users, in what venues? For example recreational drug users are very different from homeless drug addicts.

9. How did the recruitment took place? How many participants were recruited through which recruitment strategy? A flow chart could be informative to present recruitment.

10. Recruitment criterium; participants should be willing to complete the study. This leads to a selection bias, and should be mentioned in the discussion. How many people were recruited/asked and how many agreed to participate in the study?

11. STD examination, which STDs?

12. This sentence is not clear: ‘Drug use is illegal…to consent’. Do you mean participants may have declined to participate or you included participants without an informed consent?

Statistical analyses
13. Calculation of prevalences should be included.

14. Did you test for confounding and effect modification?

Results

Major compulsory revisions

15. Ketamin users is mentioned two times.

16. Do not repeat results in text and tables. Only the most important results from the tables can be briefly described in tekst.

17. Im the Discussion the following is concluded: ‘This study contributes to understanding the emergent role of club drug abuse on the HIV/STD epidemic and its association with risky sexual behavior in the 2 cities of Shandong Province.’ Since, analyses on the association between club drug use and risky sexual behavior was missing, this cannot be concluded. This analysis should be included because it is part of the study objective.

18. Generally, syphilis is a problem in a specific risk group for STDs; men who have sex with men. Do you have any information regarding sexual preference of the participants? Otherwise, this should be mentioned as a limitation in the Discussion.

19. Among drug users, MA use is large, but it is not clear if MA is used as only drug, or in multi drug use. This is important for the conclusion of the study.

Table 1.

Major compulsory revisions
20. Table 1 is too extensive. In tables, focus on the most important results for your objective. In this study, I would suggest: syphilis, HCV, sexual and drug use behaviors. Multiple determinants can be described in text briefly for example study sites, residency, ever received intervention, ever had a test for HIV, know HIV test result, HIV infection (because of low numbers, n=2).

21. Syphilis and HCV positives are duplicate in the table. They are included in participants (n=805) and are analyzed as a separate group. Change this into syphilis/HCV negative, syphilis positive and HCV positive. Were there persons infected with both syphilis and HCV? This should be mentioned.

Table 2.

Minor essential revisions

21. I suggest table 2 would contain results of multivariate analysis only. The table would become more clear and accessible for the readers. Results of univariate analysis are already presented in text. The emphasis should be on the results of multivariate analyses.

Discussion

Major compulsory revisions

22. Drugs were not associated with syphilis infection. Only injecting drug use was independently associated with HCV infection, although it is not clear which type injected drug, probably heroin. This is a main result of the study and should be stated more clearly.

23. Independent risk factors for syphilis were female sex, having commercial sex in the past 12 months, with less regular sex partners and co-infection with HCV. No conclusions are made to target syphilis prevention in female sex workers, although this is the most vulnerable group for possible syphilis infection according to your results.

24. Independent risk factors for HCV were injecting drug users and co-infection with syphilis. No recommendations for information/prevention programs were made. According to this study, needle sharing of injecting drug users could be a reasonable cause of the HCV infections.

25. The sentences ‘China has seen…of Shandong Province’ are well written and should be moved to the Introduction. It represents your study objective more concise than current sentences in the Introduction.

26. The sentence ‘This study…sexual behaviors’ is not based on the results of this study. Club drug use (MA?) was not associated with syphilis and HCV. Neither the association between (club) drugs and risky sexual behavior was analyzed, nor the association between (club) drugs and HIV. Rewrite the sentence according to the results of the study.
27. Extensive use of illegal drugs is the second result.
28. Add reference to the sentence ‘Unprotected heterosexual contacts…a timely fashion’.
29. Add reference to the sentence ‘studies have revealed…heterosexual partners’.
30. ‘Despite these limitations and possible biases, we feel the data highlight a prevention opportunity that cannot be ignored.’ Think about which prevention opportunities are supported by the results of this study and which prevention opportunities are supported by literature.
31. Start new paragraph from ‘This study revealed…of the syndemics.’

Abstract

Major compulsory revisions

32. Replace objective by background and add background information for the study.
33. The objective is not stated clearly. There was no analysis on the type of drugs and its correlates.
34. Explain methods more clearly. What was the study group? What was collected in terms of data and biological samples. Also include the type of analysis.
35. Limit results to main results only. Delete sentences ‘All syphilis cases…the last sex’. These are not the main results according to your objective.
36. The conclusion needs to be in line with the main results. For example; Methamphetamine is the predominant drug used among the drug users, although there was no association between MA and syphilis/HCV. The prevalence … Keep in mind which prevention/intervention opportunities are supported by the results of this study.

Level of interest: An article of importance in its field

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