Author's response to reviews

Title: Vulnerability to HIV infection among female drug users in Kathmandu Valley, Nepal: a cross-sectional study.

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Author's response to reviews: see over
Dear Editors, BMC Public Health,

Thank you for giving us the opportunity to revise our manuscript entitled: “Vulnerability to HIV infection among female drug users in Kathmandu Valley, Nepal: a cross-sectional study”. We appreciate the thorough and thoughtful comments to improve our work.

We have carefully revised the manuscript accordingly and believe it has greatly improved over the original. The Discussion section has been revised, additional references were included as suggested, and the tables were simplified. Also, the Background Section was updated with the latest epidemiological data. Finally, the whole manuscript has been proofread by native English speakers and conforms to the journal style. Please, see below a point-by-point response (in blue) to each of the reviewers’ comments.

We look forward to your response.

On behalf of the authors, sincerely yours,

Bhagabati Ghimire

Corresponding author
Referee 1: Yong-Tang Zheng
Discretionary Revisions
No comments.

Referee 2: Knut Fylkesnes
- Major Compulsory Revisions
1. Introduction: now improved substantially.
   Thank you.

Results
2. Modelling in Table 3: Need to reconsider this: Model 5-7: Putting in some of the behavioural
   variables simultaneously in the model might be questionable (both for sexual partners and
   condom use). Have you checked correlations?
   Yes, we checked for collinearity between all independent variables, including type of sexual
   partners and condom use. They were all within acceptable limits (VIF and Tolerance). We
   have inserted a sentence in the Statistical Analysis section mentioning this.

3. Suggestions: For type of sex partner in model 5: Not sure what this means when all the 3
   variables are in the model simultaneously. Is it reasonable to assume that commercial sex is
   most risky and if involved with highest exposure. I would have at least checked by adding
   them stepwise (first com., then reg., etc.).
   We are trying to determine the relative contribution of different types of partnerships and
   safer practices with each type of partner for HIV infection. Yes, it is reasonable to suggest
   that commercial sex involves higher risk, however, female drug users are more likely to have
   regular sexual partners who are IDUs. Moreover, we know from a previous study among
   non-sex workers females attending STI clinics in Japan that not only casual sex or multiple
   partnerships may be predictive of sexual health risk but also unprotected sex with regular
   partners (Ono-Kihara et al, BMC Public Health, 2010, 10:106). Thus, we consider appropriate
   to include all three types of partnerships.
   We re-assessed our results inserting the variables of type of sexual partners (for model 5),
   frequency of condom use with each type of sexual partner (for models 6 and 7), and
   injecting behaviour in a stepwise manner, as suggested, and we obtained similar results.

4. Another strategy would have been to compute – construct an index capturing exposure in
   terms of number of partners: would be 4 categories: none, 1 of them, 2 of the , all three.
   Then a full model with demographic, education and this variable together with sharing
   (“Needles or syringes previously used by someone else by frequency of injecting in the past
   month) would be better.
   Thank you for your suggestion. However, we feel that a category of “one” or “two” sexual
   partner could be misleading since it does not distinguishes which type of partner it is. Also,
   we can roughly estimate the AORs of this transformed variable from the individual AORs.

5. Condom use in a cross sectional study might be indicative of anything in an relatively old
   epidemic since not necessarily being indicative of protection, e.g. condom use might have
   started related to knowledge of own infection or being infected long before condom use
   started. Therefore, in the modelling in Table 3 it has no value.
Yes, a disadvantage of any cross sectional study is that we cannot distinguish whether condom use preceded the HIV infection or whether the status of being HIV infected affected the individual’s condom use. But it does not invalidate its inclusion, since we are assessing associations rather than testing hypothesis on causal relationship. We have expanded our discussion about condom use with commercial partners and casual partners in the Discussion Section.

Tables
6.   Table 1 error in percentages for education: no school 0.4%
   Thank you, it was corrected. Actually the percentage of HIV positives that “Never went to school” is 4.1% (2/49).

7.   Table 1 and 2. Could simplify by removing the info on negatives from the table.
   We agree, the column for negative HIV results have been removed.

8.   Table 3: for all dichotomous (no/yes) variables: remove all information on the no category
   Thank you the suggestion. We have removed the rows for all reference categories, not only dichotomous variables to have a homogenous appearance.

Discussion
9.   This statement “This is the first bio-behavioural study in Nepal and in developing countries at large on female drug users, ....” might be questioned. A study (HIV testing and risks) from Vietnam on different groups included FSWs also being IDUs. (reference Bull World Health Organ 2007, 85(1): 35-41).
   Thank you for bringing this to our attention. We have now deleted this short paragraph.

10.  Paragraph 2 starting with injection behaviour: Here is a lot to discuss in relation to the literature (previous studies among IDUs).
    We have split in two this paragraph, discussing first injection behaviour and then sexual behaviours. Also, we included new references.

11.  This statement should also be revised: “However, more importantly this study strongly suggests that injection behaviour is not the only risk for HIV infection in this population, but the sexual behaviour is also of an equivalent or even greater risk”. The only statement being based on the data will just be to say that the great risk is bot due to unsafe injection behaviour and unprotected sex. These two exposures are mixed and there is no way that the analysis in the present study can distinguish as you are doing.
    We may have overreached our results, but have now revised our statement to “Unprotected sexual behaviour was also of great risk in this study”.

12.  Condoms: the highest prevalence among those with most frequent condom use is not an “unexpected finding”, see above. Find references here.
    We agree with the reviewer and have included previous studies showing the same findings in our Discussion.

13.  The paragraph starting with “Targeted HIV prevention......” about interventions needed should have reference to the literature about what works.
    Our discussion of HIV prevention interventions, Paragraph 5 of our new manuscript, now includes references from other studies and successful interventions in other countries.
14. “…higher education attainment remained as strong predictors of HIV infection..”; this statement is misleading since the main difference was between those with no education and the rest (with very high prevalence)
   We have rephrase “higher education” to “having education”, as we refer to have education.

15. The potential biases related to the sampling procedures: this paragraph is now well done.
   Thank you.