Reviewer's report

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

Version: 3 Date: 25 September 2013

Reviewer: Knut Fylkesnes

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Vulnerability to HIV infection among female drug users .......

- Major Compulsory Revisions

Introduction: now improved substantially.

Results

Reconsider the description of condom use. There are two main results: 1) positive association frequency of reported use of condoms and infection, 2) high transmission risk in both the other groups regardless of condom use. See further comments below regarding the relevance of this for the modelling.

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?

Suggestions: For type of sex partner in model 5: Not sure what this means when all the 3 variables are in the model simultaneously. I is 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.). 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.

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.

Tables

Table 1 error in percentages for education: no school 0.4%

Table 1 and 2. Could simplify by removing the info on negatives from the table
Table 3: for all dichotomous (no/yes) variables: remove all information on the no category

Discussion

This is still a weak part and includes some questionable interpretations of the result.

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).

Paragraph 2 starting with injection behaviour: Here is a lot to discuss in relation to the literature (previous studies among IDUs).

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.

Condoms: the highest prevalence among those with most frequent condom use is not an “unexpected finding”, see above. Find references here.

The paragraph starting with “Targeted HIV prevention…….” about interventions needed should have reference to the literature about what works.

“…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)

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

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

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

'I declare that I have no competing interests'