

## **Author's response to reviews**

**Title:** A study of HIV/AIDS related knowledge, attitude and behaviors among female sex workers in Shanghai China

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**Author's response to reviews:** see over

Dear Prof. Nina Titmus, the Scientific Editor:

We have thought over and discussed our paper again, and then we decide to resubmit the re-revised manuscript to BMC-series Journals. We appreciate your reconsideration of the present carefully re-revised manuscript.

We understand that BMC-series Journals are high profile journals. We have re-revised our manuscript carefully according to the referees' comments.

Thank you for your reconsideration.

Best regards,

Hong Huang

Point to Point Reply To Referee 1: Reviewer: Juan Pablo Gutierrez

#### 1. Introduction

The background to the epidemic in general population is very important to show the HIV spread in China, so we have improved it in the revised manuscript.

#### 2. Methods

We gave the detail description of study area, sample and procedure. As Professor Juan Pablo Gutierrez said, it is very important to estimate ICC and adjust the sample by it. There are less Chinese papers cared ICC in the studies. We learn much from Professor Juan Pablo Gutierrez and thank you very much.

#### Study area

Shanghai is one of the biggest cities of China where the HIV/AIDs transmission attributed largely to heterosexual. Since commercial sexual services is illegal in China and most sex workers generally operate underground, we can not estimate the total number of FSWs in Shanghai, but with the help of non-governmental organizations and community hospitals having links with FSWs, we conduct our study among 5 districts (Songjiang, Putuo, Qingpu, Hongkou and Pudong) of Shanghai where access to FSWs was considered feasible in 6 month.

#### Sample and Procedure

We adopted a cluster sampling method in Shanghai to get the sample. 10 geographic sites were identified randomly from the five districts (including 4 downtown areas and 6 suburbs) in our study. Each geographic site consisted of one or more close-by location (community/villages) where FSWs were

accessible, and these FSWs usually operate in hotspots such as Xitou Fang, massage parlors and hair salons. We visited every hotspots where provided commercial sexual services. Currently, there were only 2-4 female sex workers worked in every hotspots.

By a detailed review of the literature and Small-scale pre-survey on commercial sex, female sex workers in Shanghai, we found the risk behaviors such as unprotected sexual intercourse is about 38%. According to research cross-sectional sample size estimation approach, allowing the error to take  $d=0.15P$ ,  $P=38\%$ ,  $Q = 1-P =62\%$ .  $\alpha =0.05$ . The sample size calculation method we used was  $n=t^2PQ/d^2=250$ . As we know, the intra-cluster correlation coefficient (ICC) of the primary outcome plays a key role in the design and analysis of cluster randomized trials, in which clusters such as health care organizations, school classes, or geographic areas are randomized to trial arms, and outcomes are measured on individuals within those clusters]. The ICC for condom use ranges from 0.01-0.08 in other studies. Since it is very difficult to get a big sample in the study of female sex workers in China, we use ICC=0.01 to adjust the sample size.

$$N_{\text{adjusted}} = n \times [1 + ICC (m - 1)] = 250 \times [1 + 0.01 (25 - 1)] = 310$$

Finally 324 female sex workers of these hotspots from 10 geographic sites yielded the study sample and completed the interviewer-administrated questionnaires. And in-depth interviews with female sex workers were used to collect information about condom use and other behaviors related HIV/AIDS. We explained the study purpose to the FSWs and emphasized that participation was voluntary and anonymous before survey.

#### Ethics:

This study was funded by Shanghai Municipal Health Bureau (project number: 08GWQ055) and Shanghai Education Committee(project of innovation), it was approved by Shanghai Medical Ethics and the Shanghai Municipal Health Bureau.

#### Result:

It is very important to adjust the output since we conduct a cluster randomized sampling method to get 10 geographic sites in our study. However, there is no similar study in China, so we calculate  $\chi^2_{rs}$  proposed by Rao and Scott instead of person chi-square in table1 and table2 of the revised manuscript. We did not adjust output in table3 because it was just a simple description of condom use among FSWs.

Point to Point Reply to Referee 2: Reviewer: Wu Zunyou

1. Ethics:

This study was funded by Shanghai Municipal Health Bureau (project number: 08GWQ055) and Shanghai Education Committee(project of innovation), it was approved by Shanghai Medical Ethics and the Shanghai Municipal Health Bureau.

2. We have check the format of reference. Thank you very much.