Reviewer’s report

Title: Seroprevalence of Human Papillomavirus Types 6, 11, 16 and 18 in Chinese Women

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Reviewer: Xiang-Sheng Chen

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The manuscript reports a cross-sectional study on seroprevalence of HPV types 6, 11, 16 and 18 among Chinese women. The study was well conducted and analyzed but some comments on the manuscript are proposed as follows:

MAJOR COMMENT

1. The study reports the seroprevalence of antibodies to HPV types 6, 11, 16 and 18 in Chinese women. The authors indicate that there are few studies on estimation of HPV seroprevalence and conclude that the findings from this study can be used for designing and implementing cervical cancer control and prevention programs via future prophylactic vaccination programs. However, rationale of this conclusion is based on the relationship between the seroconversion of the high-risk HPV types and the cervical infections, especially persistent infections, with the high-risk HPV types. Are there any evidences (or studies) to validate the relationship?

METHODS

2. Different terms, seroprevalence, prevalence, seropositivity, were used. Are there any differences? If not, the most appropriate term should be sued throughout the manuscript.

3. What was the definition of a virgin in this study? Was it based on self-reported information collected through asking the participants?

4. It is not quite clear for me in sampling strategies? Based on the “target population”, what did the authors do in terms of sampling? In each of age-group strata, a maximum of 125 women were recruited. In this case, non-probability sampling method was used. What percentage of women in each stratum was recruited actually?

5. Was the information about husband’s behaviors of extramarital sex collected through interviewing the women participants? If so, how much information bias did the authors estimate? Based on responses of the participants excluding those responded “unknown”, 30% of the husbands had extramarital sex, which is much higher than the previous studies conducted in China. Information bias is a concern.

6. Some part of the text should be re-organized. E.g.,

a) In 3rd paragraph of “Study population”, some descriptions to limit the
participants for data analysis (… women who had complete HPV DNA data and cytology results; one woman had mission serological results …) should be reorganized as a part of statistical analysis.

b) In 1st paragraph of “Sample collections”, laboratory assays related to determining HC2 positivity and cytology examination should be under a separate subtitle. Particularly, a statement of study sites is inappropriate to be included in this section.

RESULTS

7. HPV seroprevalence of high-risk types was much lower in virgins (2.5%) than sexually active women (15.8%). Is the difference attributed to sexual behaviors or age difference in these 2 subgroups because a difference among age-groups was found as well in this study?

8. In results section, seroprevalence and its 95% confidence intervals were used and also comparisons of two seroprevalences based on univariate analyses were conducted but these statistical methods were not mentioned in the “Statistical analysis” section. P value used for determining statistical significance was not mentioned and p value of each comparison of seroprevalences in results section was not provided to show the significance level.

9. The study subjects include 4211 sexually active women and 520 virgins, but only were the sexually active women included in the analysis of socio-demographic and behavioral characteristics. Why?

DISCUSSION

10. The statement “Although reports of husbands’ extramarital relationship were provided by wives via questionnaire and might be inaccurate, associations between HPV seropositivity and husbands’ sexual activity were strong” seems very subjective.

11. Regarding the strengths of the study, relatively large sample size may one of them but it is not necessarily indicating that it can provide a sound basis for future planning of a vaccination program. Furthermore, the authors indicate that their study provides a fair estimate that HPV seroprevalence is intermediate in China because sample size of the study is large. However, a fair estimate is not only subject to sample size of the study but its representativeness.

12. The study found that the Uyghur minority and Shanghai had higher seroprevalences than their counterparts (Han and Beijing). What are the implications of these findings for interventions?

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

Quality of written English: Needs some language corrections before being published

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.