Author's response to reviews

Title: Factors associated with recent HIV testing among high-risk men who have sex with men: A cross-sectional study in Cambodia

Authors:

Siyan Yi (siyan@doctor.com)
Sovannary Tuot (tsovannary@khana.org.kh)
Pheak Chhuon (cpheak@khana.org.kh)
Carinne Brody (carinne.brody@tu.edu)
Dyla Khuon Pal (pkhuondyla@khana.org.kh)
Sopheal Oum (osopheap@khana.org.kh)

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Author's response to reviews: see over
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Victor Minichiello, PhD
Section Editor
BMC Public Health

Dear Dr. Minichiello,

Thank you very much for your kind consideration on our manuscript.

Please find a revised manuscript entitled “Factors associated with recent HIV testing among high-risk men who have sex with men: A cross-sectional study in Cambodia.”

We have revised the paper based on very constructive comments from the reviewers. We would be very grateful if you could accept this paper for publication in BMC Public Health as a ‘Research article.’

Two attached files include a ‘Cover letter with a list of responses to reviewers’ and a ‘Revised Manuscript’ with revised contents highlighted in blue.

Should you have any further questions, please feel free to contact me.

Yours sincerely,

Siyan Yi, PhD
Corresponding author
Founding Director, Center for Population Health, KHANA
#33, Street 71, Phnom Penh,
P.O Box 2311 Phnom Penh 3, Cambodia,
Tel: +855-23-211-505/ Fax: +855-23-214-049
Email: siyan@doctor.com
We would like to express our sincere gratitude for the constructive comments from the reviewers. We found them very helpful for improving the quality and accuracy of our manuscript. We have made all efforts to address each comment very carefully. All revised parts in the text have been highlighted in blue. Please find our responses to reviewers’ comments in the table below.

<table>
<thead>
<tr>
<th>Comments</th>
<th>Responses</th>
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<tr>
<td><strong>Reviewer 1: Bruno Spire</strong></td>
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<tr>
<td><strong>Title</strong></td>
<td>Thank you very much for your important constructive comments. The title of the paper has been revised as advised: “Factors associated with recent HIV testing among high-risk men who have sex with men: A cross-sectional study in Cambodia.”</td>
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<td>The title should be focused on recent testing, since it is the main outcome of the analysis</td>
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<td><strong>1. Introduction</strong></td>
<td>As suggested, this part has been revised: “Moreover, most of the available studies in the literature have examined factors associated with history of lifetime HIV testing, HIV testing in the past 12 months, or intention to take up HIV testing. Findings from these studies are definitely important; however, it is more critical to understand factors related to more recent HIV testing history. The Cambodia’s national guideline recommends HIV testing at least once in six months for sexually active MSM to identify HIV infections and prevent ongoing transmission.” Please see lines 3-9, page 6.</td>
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<td>The authors state “To the best of our knowledge, very few studies have been conducted on sexual risk and prevention behaviors of MSM in developing countries”. There are numerous papers focusing on sexual behavior among MSM in Africa. It is likely different concerning recent testing. This sentence should be modified.</td>
<td></td>
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<td><strong>2. Methods</strong></td>
<td>Details on the measurement of history of HIV testing and condom use have been added to the text. Please see lines 12-16, page 8.</td>
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<td>2.1 The testing history related question and the condom use question should be more details. It is important to note</td>
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whether it is systematic condom that is used in the analysis.

2.2 Why using a $p<0.05$ for eligibility criteria in the multivariate model? It is more usual to use a less stringent criteria such as $p<0.25$, especially when the number of observations is not that high. Thank you for this important comment. Using a less stringent criteria of $p<0.25$, too many variables would be eligible to be included in the model. We therefore decided to choose $p<0.2$ as the cut-off. In the analysis, variables with a $p$-value $>0.05$ were then removed for model fitting, and the steps were repeated until all $p$-values of the remaining variables were $<0.05$ in the final model.

The model was redone and all related results and contents in the text and table were revised accordingly. Please see lines 16-21, page 9.

### 3. Results

| 3.1 Is there information about the current HIV status of the respondents? If yes, how does it affect the results? | Due to the sensitivity of the issue, the information about the current HIV status or result of their HIV testing was not collected. |
| 3.2 The table 6 is not clear. Variables that are not significant after adjustment should be eliminated from the table, and from the model. | This comment has been addressed together with comment 2.2. Please see above. The table was revised keeping only significant variables in the final model and the table. Please see Table 3. The related text in the ‘Results’ was also revised accordingly. Please see lines 6-15, page 13. |
| 3.3 The variable “$>5$ partners” shown as NS is different from the mean number of sexual partner which is significant in univariate analysis. Why not using this variable in the multivariate model? | To also address earlier comments, variables found to have association with HIV testing at a level of $p<0.2$ were included in the model. Please see our responses to comments 2.2 and 3.2 above. |
| 3.4 There are too many tables. Table 1, 3 and 6 should be fused in the same table showing univariate and multivariate analyses with different columns. It is not useful to show variables that are not eligible for multivariate analysis; they need just to be listed in the text stating that no different was found concerning these variables. That’s why tables 4 and 5... | We would like to keep three tables:
- Table 1: Comparisons of socio-demographic characteristics of MSM who had and who had not been tested for HIV.
- Table 2: Comparisons of sexual behaviors among MSM who had and who had not been tested for HIV.
- Table 3: Factors associated with recent HIV testing among MSM in a multiple logistic... |
are useless. regression model.
Combining the three tables (tables 1, 3, and 6) would make the table too large and difficult to manage.
We have removed Table 2 (HIV testing history), Table 4 (HIV testing attitudes), and Table 5 (HIV knowledge), keeping the information only in the text.

4. Discussion

4.1 The first paragraph of the discussion is not clear. Do the studies that are cited related to recent testing or to life-time testing? It is more important to cite those who show data on recent testing since it the main objective of the present paper.

4.2 I disagree with the sentence “In summary, this study highlights the common practices of risky sexual behaviors and relatively low rates of HIV testing among MSM in Cambodia” in the conclusion. The rate that was found though not optimal is far better than in many other vulnerable populations and in many countries...The sentence should be nuanced.

Reviewer 2: Robert Magnani

This sampling scheme contains elements of probability sampling (e.g., two-stage cluster sampling, probability proportional to size selection), and is commendable for this. However, it also contains elements of convenience sampling, which renders the results uninterpretable. Why limit to communes with at least 20 MSM? Also, "other conditions such as convenience and accessibility were also considered to justify whether to exclude a venue or hotspot." This precludes the sample from being anything more than a convenience sample. The authors also sampled only

Thank you very much for your critical comments over the sampling scheme, which is very important in interpretation of the findings. We understand that this is one of the major limitations in this study.

Please note that data used for this analysis were collected as part of the end-line survey of an impact evaluation of the Sustainable Actions against HIV and AIDS in Communities project (SAHACOM), a community-based intervention that provided packages of HIV and sexual reproductive health services to key populations, including people living with HIV, orphans and vulnerable
from venues and hotspots. However, in settings where stigma and discrimination are high, many MSM remain "hidden" and do not go to such hotspots (in such settings many recruit sex partners over the internet). So the sample is in effect a convenience sample of an unspecified portion of the MSM population with regard to size and characteristics. The analyses are based upon cross sectional data, from which causal inferences can be made on a speculative basis only. To their credit, the authors consistently talk about "associations" rather than causal influences, but nevertheless there are many studies of this type around and few can actually tease out causal influences.

This point has been addressed in the limitations of the study.

“Data used for this analysis were collected in the end-line survey as part of an impact evaluation of the SAHACOM project. Thus the sampling scheme was not necessarily designed for this cross-sectional analysis. However, we believe that this shortcoming would not affect the interpretation of the findings.”

Please see lines 18-21, page 16.

**Reviewer 3: Vivian Towe**

***Minor Essential Revisions***

<table>
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<tr>
<th>1. pg 4, lines 8-9. In Background, can authors give a little more context about national coverage of HIV testing among MSM (e.g., lifetime, vs. last 12 months), so that readers can compare this study’s results to literature's findings?</th>
<th>Thank you so much for your very constructive comments. We found them very useful for improving this research paper. We have added the available information on the rates of HIV testing in lifetime, past 12 months, and past three months based on findings from two different studies conducted in 2010 and 2013. However, no information is available for the rate of HIV testing in the past six months. We have also added prevalence of HIV and STIs in this population. Please see 10-16, page 4.</th>
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<td>2. Pg 6, lines 6-7. I am not familiar with the use of the word ‘commune’ in this context. Is it just places where high numbers of MSM congregate?</td>
<td>In Cambodia, communes are the third-level administrative divisions. They are the subdivisions of the districts. Communes can consist of as few as 3 or as many as 30 villages, depending on size of the population.</td>
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<td>3. Pg 6, lines 14-15. For the ten respondents that were excluded from the analysis, did they say they had experience at screening and it was discovered during</td>
<td>The 10 respondents were excluded in data cleaning stage. This statement has been clarified. Please see lines 7-8, page 7.</td>
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the survey that they hadn’t ever? Please clarify this.

4. Pg 10, line 7. “and to perceive themselves as having higher HIV risk compared to general population”. Thank you for this correction. This has been corrected. Please see lines 18-19, page 11.

5. Pg 10, line 17. Is this question among folks that reported not having had a test in last 6 months, or the entire study population? This question was for participants who had not been tested for HIV in the past six months. It has been made clearer in the text. Please see lines 19-22, page 10.

**Discretionary Revisions**

1. Pg 13. “These findings do not support findings in previous studies which reported that perception of high HIV risk may prohibit MSM from getting tested [25,26,32,52,56].”—Can authors discuss what the differences across countries are? Perhaps because Cambodia and Hong Kong provide strong support and care to HIV infected people, the finding is that high risk people want to get tested, while in other countries, some issues are influencing the opposite reasons/testing behaviors? This comment has been addressed in lines 8-10, page 15.

   “On the other hand, it may highlight stronger supports in care and treatment services for HIV-infected people in some countries such as Cambodia and Hong Kong that may encourage high-risk MSM to get tested.”