Author's response to reviews

Title: Perceived control over condom use among sex workers in Madagascar: a cohort study

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Author's response to reviews:

To the Editors,

Thank you for considering our study for publication. Please find our responses to the reviewers below. Please do not hesitate to contact us if you have any questions.

Kind Regards,

Audrey Pettifor

Reviewer 1

Major Compulsory Revisions

1. Construction of the questionnaire: How were the measurements developed and validated?

The study is of importance in the field of perceived behavioral control (in this case perceived control over condom use), and the attempt to quantify the concept. However, perceived behavioural control represents the individual's perception of the presence or absence of necessary resources and opportunities, as well as anticipated obstacles or impediments. These are further explained with social theories. It is difficult to detect from the methodology how perceived control over condoms was defined (measured) and what the underpinning theory was (and if a theory was used) in the construction of the measurement.
See below.

1. Construction of questionnaire – explain testing for validity and other psychometric testing

No psychometric testing was conducted. We did not construct a scale with the questions asked but rather looked at each question individually. In addition, this analysis is a secondary analysis based on data collected as part of a larger study. The main study was not designed to examine the question explored in this paper, nevertheless, given that a number of questions were asked about a theme we have called “condom use control”, the longitudinal design, the ability to distinguish between main partners and clients and the sex worker population we felt it was an important secondary analysis to conduct.

While we recognize that behavioral theory is key in developing and testing hypotheses and interventions, as noted, this study uses data post-hoc to conduct this analysis and therefore no theory was used specifically to construct these measures. However, as mentioned the questions asked here are based in questions on self-efficacy and perceived control which are key in many behavior change theories, including the theory of planned behavior, the health belief model, social cognitive theory etc. Therefore while we did not a priori select a theory to develop these specific measures, the questions asked are based in questions on condom use self-efficacy and perceived control which have been shown to be key to condom use in many studies.

2. On page 6 explain the development/ construction of the 6 questions (references and see 2 above)

The questions were adapted from questions on condom self-efficacy and the Sexual Relationship and Power Scale (Pulerwitz J et al. Sex Roles 2003).

• Minor Essential Revisions
  1. Explain or cite references for eligibility (inclusion) criteria on page 5

The main trial methods and findings are cited (7 - Behets) and include the eligibility criteria. Eligible women were 15 to 55 years old (though the youngest participant was 16 years old), had at least 4 sex partners in the past month, reported less than 100% condom use in the past 2 weeks, intended to stay in the area for the next month, were not pregnant or planning pregnancy in the next 2 months, had no allergy to latex and no physical abnormality that precluded diaphragm use, and were able to give informed consent.

2. Confusion on question 5 – angry or argue – what are we testing? See also results later when referring to this question (page 10, all 3 tables).

The question grouped these two concepts together and this is how it was asked - angry or argue, therefore there is no way to untangle the two. The question
attempts to measure visibly negative reactions of the partner to a request by the woman to use a condom during sex.

3. Check statistics again – page 8 – main partner characteristics, page 9 – last sentence before condom use at baseline, significant testing last sentence in section of condom use at baseline

Unclear what the reviewer is querying? The main partner characteristics were checked and no errors were detected.

• Discretionary Revisions

1. Define measures of gender-based power (page 10)

We state in the paper that perceived control over condom use is a measure of gender based power. The widely used Sexual Relationship Power Scale developed by Pulerwitz et al. has a strong component in the scale on condom use control- relationship control is one of the main domains of the scale.

Reviewer #2

Minor Essential Revisions

One issue I found a little confusing was the authors’ criteria for defining who were clients and sex workers. My suggestion is to more clearly define both terms and how the project knew that the women were sex workers and the men who were not “husbands/boyfriends” were clients. The demographic data support this hypothesis, yet it is unusual to see a study that considers the women as sex workers yet does not include “trading sex for money or material goods in the past X amount of time” as a criteria for participation and fitting this definition. It would be great if the authors could address this issue in the text, perhaps either through more contextual information about sex work in Madagascar or even citing other studies that have used a similar criteria if they exist.

The main investigators and in country staff have worked with this population of women for many years and the clinics where these women were recruited for the study specifically target ‘sex workers’ for STI prevention and treatment through peer outreach. Women were asked if they have ever had sex to earn money and all of the women in the study responded “yes” to this question. There is a chance that some of the ‘other’ partners were not ‘clients’ however it is highly unlikely based on extensive qualitative work the team has done with the same women and from frequent interactions with this population over many years.

The stated objective of the study is to “describe baseline indicators of condom use control by type of sex partners”, yet the authors include some data from the follow-up surveys, even though their dependent variable was not measured at
follow-up. This creates some confusion. I would suggest taking out the follow-up study part and focusing the text exclusively on the baseline data findings regarding perceived control over condom use and condom use (and therefore revise the title as well). If the authors feel strongly about leaving in the follow-up data, I would suggest comparing the follow-up data more clearly to the baseline data (perhaps in a separate section of the results).

We respectfully disagree with the reviewer. While we agree a limitation is that we only asked the condom control questions at baseline- the duration of the study was fairly short (4 weeks) and perhaps one of the strongest elements of the study is the longitudinal design. While condom control may vary with partners, the vast majority of women did not change ‘main’ partners in this short time and the perceived control with clients we feel gets at the woman’s overall ability to negotiate condom use with clients which is therefore not client specific. Gathering the woman’s perceptions of condom control at baseline and then looking prospectively at condom use allows one to get a better sense of temporality and direction of causality which would not be possible if the design were purely cross-sectional.

One limitation is the basis of comparison between the perceived control variables of whether anyone had ever refused to use a condom or become angry when condom use was suggested. For the clients, the question only referred to the last client as opposed to “ever” for a main partner. It would seem that a sex worker would perhaps be more reticent to negotiate condom use with a client if other past clients (not necessarily the last one) had ever refused or become angry with them for insisting on condom use. Could the authors please address this and explain why they chose to make this distinction for these two questions specifically?

While this is an important and good point, the decision was made to ask about the last partner to facilitate recall (if the woman had many partners she could more easily remember the event with the last client). The questions were asked as part of a whole series of questions that were focused on the last partner to optimize recall.

It may be helpful if the authors engage a little more with issues surrounding gender. For example, could the authors include a little more information about how and why they chose these proxies for “gender-power”? It seems that it may not be exclusively related to condom negotiation and of course could be reflected in other areas of the women’s lives as well. I realize that this is outside the scope of the article, but it may be worth adding a sentence or two in the discussion or
limitations about how this study measures a very specific aspect of gender-power, but recognizes that there are other measures of gender power that would be important to take into account (for example, who supports the household financially, etc.).

We certainly agree with the reviewer. We have added a sentence to the limitations section. This analysis was a secondary analysis after the study was completed as the questions were interesting, important, and available from the main study. The primary study was not designed to examine the effect of gender power but questions on condom control were asked and we felt it was useful to examine their association with condom use given the ability to examine condom use over time and distinguish between main partners and clients.

In Table 1, of perceived control over condom use, it would be helpful if the authors indicate if the differences between main partners and clients was significant or not.

We agree, unfortunately we were unable to statistically compare the two groups as they are not the full sample of women in the main partner analysis.

In this same table, it would be helpful if the authors included all of the frequencies for perceived condom use control in Table 1.

We have added them but have added a footnote to indicate that the questions were not asked the same way in both group (i.e., ever for main partners but last partner for the clients)

Discretionary Revisions
As someone less familiar with the country, I would have found it helpful to have more contextual information about sex work is in Madagascar, previous research conducted there, and again, how the authors were able to assume that all of the women interviewed were sex workers. I would specifically suggest the work of Kimberly Stoebenau.

We have added a paragraph to the discussion to contextualize the findings within Madagascar, Kirsten’s work is excellent and thank you for the suggestion.

Did the authors look at the relationship between the variables included in the perceived control measurements? For example, the finding that unprotected sex was not significantly associated with their main partner ever becoming angry or even violent when asked to use a condom as opposed to being significantly associated with the main partner ever refusing to use a condom is surprising and made me question if there was any relationship between the variables (i.e., if the
women who reported a violent reaction to condom use also reported main partner refusing to use a condom).

We did and the correlation between variables was not very strong, while there was some correlation it was not high.

Finally, on page 10, it would be great if the authors could include the data about the difference in condom use between regular and non-regular clients. This data, along with the increased vulnerability with main partners would seem to indicate that intimacy is also a factor in negotiating condom use.

This is a little confusing to present because the effect estimate for type of partner would be different in each model for each exposure, however, in the unadjusted model the IRR was .84 (95% CI .66- 1.08) –thus not significant in the unadjusted model but it was significant in a number of the adjusted models (e.g for various different condom use control exposure variables). Therefore, interpreting the unadjusted model those with non-regular clients were less likely to report unprotected sex acts compared to those with regular clients, although it was not statistically significant.