Author’s response to reviews

Title: Factors in the HIV Risk Environment Associated with Bacterial Vaginosis among HIV-Negative Female Sex Workers who Inject Drugs in The Mexico-United States Border Region

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Author’s response to reviews:

Dear Editor in Chief,

The comments we received are listed below with each corresponding edit(s) made. Thank you very much for your feedback. We look forward to hearing from you soon!

Abstract

1. Make sure the changes in the factors associated with BV you made in the title (sociostrutural) are read the same in the abstract introduction section, methods and the rest of the manuscript.

Thank you - We have changed the title to: Factors in the HIV Risk Environment Associated with Bacterial Vaginosis among HIV-Negative Female Sex Workers who Inject Drugs in The Mexico-United States Border Region. We feel as though this title is easy to interpret and accurately reflects our work. Further, using this title allows us to adhere to the terminology
associated with the HIV risk environment framework as described by Tim Rhodes1. Please view this publication by Tim Rhodes for further clarity on the framework chosen for this analysis.

2. The methods section would better start with "A cross sectional analysis of baseline data emanating from an RTC..." to avoid painting an RCT picture as commented earlier by reviewers.

Thank you - The language in the methods section of the abstract has been changed to reflect this.

3. Use of terms such as microphysical HIV risk environment doesn’t conform with the title started "sociostructural" factors, make sure you maintain consistency in the use of these terms to avoid confusing the readers.

Thank you – this has been addressed by changing our title.

Introduction

1. Need to be consistency in describing the risk factors clusters addressed in this study as commented above

Thank you – this has been addressed by changing our title.

Methods

1. Include a sub-heading for study setting separately and describe it in detail including HIV/STI risk environment, state and structure of health services provision, population size and related activities.

We thank you for your comment. We agree that this information is very important for our readers to know, therefore, we have a few paragraphs that describe the risk environment in Tijuana and Ciudad Juarez and how it relates to the sample population in the introduction section. Please see the following:

“FSW-PWIDs are considered a uniquely vulnerable population and have disproportionate rates of HIV and STIs [16]. Among FSW-PWIDs in Tijuana and Ciudad Juarez the prevalence of HIV, active syphilis, gonorrhea, and chlamydia is two to three times higher compared to FSWs who do not inject drugs, [16]. These elevated prevalences may be partially due to FSW-PWIDs increased likelihood to concede to the demands for condomless sex, due to experiencing the
urgency of drug-related withdrawal or being reliant upon partners or clients for drugs [16, 17]. Further, influences in the economic risk environment such as economic vulnerability, increase FSW-PWIDs susceptibility to demands for condomless sex from clients who pay more for this type of sexual transaction [18]. Taken together, FSW-PWIDs along Mexico’s northern border are at increased risk for HIV/STIs due to a constellation of individual and environmental factors that may also heighten their risk for BV.

The sex work industries in Tijuana and Ciudad Juarez are thriving, attracting clients from Mexico, the US and beyond, making HIV/STI transmission in these regions a global public health issue [19]. The robust nature of this industry is partly due to the regulation of sex work in Mexico [19]. As a result, FSWs are required to obtain a permit and undergo HIV/STI screening every four months, although the majority practice without permits and these procedures do not include screening for BV [19]. In Ciudad Juarez however, the red-light district has been disbanded in recent years forcing FSWs to work underground with limited access to routine HIV/STI testing [19, 20].

The physical risk environment in these cities is largely characterized by their placement along two well-established drug trafficking routes that transport illicit substances into the US frequently [21, 22]. Consequently, the drug markets in these cities are flourishing, and it has been estimated that approximately 18% of FSWs in the region inject drugs [23, 24]. Another defining characteristic of the physical risk environment in these regions is violence [20]. Tijuana and Ciudad Juarez have been subject to severe human rights violations and drug cartel-related violence for decades, leading to the normalization of violence and high prevalence of violence towards FSWs perpetrated by clients, intimate partners, and law enforcement officials [20].”

In addition to this, we have added more information to describe the study setting under the new heading ‘study setting’. Information that has been added includes more detail describing where research activities took place in each city.

2. In describing the population, include the inclusion criteria used. Did the participants need to be both FSW and PWID, did they need to be resident of the study area, did they need to have had engaged in sex work or injecting in a given recent period to qualify for the study?

Thank you - The inclusion criteria have been added to the manuscript.

3. The consenting sentence (last sentence on "study setting and sample" on page 5/6 to a new section on ethical issues/consideration.

Thank you - This sentence has been moved under a heading titled; ethical considerations.
4. Could you describe what is a Univariate regression? A regression model will usually have at least 2 variables?

Thank you for your comment. Bivariate and univariate are the same regression terms where we assess the relationship between one independent variable and one outcome variable, but to be more clear I have changed univariate to bivariate. Please note that our bivariate analyses did assess the relationship between two variables (e.g. bacterial vaginosis and an independent variable).

5. A cut off point of <0.05 for inclusion in the multivariable regression model seems too strict, usually a p-value of 0.2 is used.

Thank you for your comment. In order to ensure that we considered all relevant associations we reran the analysis using a p-value cut-off of 0.20. Variables that were significant in the bivariate logistic regression models at or below a p-value of 0.20 were considered during the model building process. We added each variable that was significant at or below a p-value of 0.20 in bivariate logistic regression, while controlling for confounders that have been identified as correlates of BV in prior research. Then, variables were removed from the multivariable models if their level of significance fell below a p-value of 0.05. I have changed the methods section to reflect this procedure in more detail.

6. Was the final model build through stepwise backward or stepwise forward regression?

We used forward stepwise model building approach and this information has been added to the methods section.

7. Include a section on ethical issues as indicated above and describe if the study protocol (or that of parent RCT) was ethically reviewed by an accredited ethical board, whether you requested permission from local authorities (these information are mentioned in the declarations and should be moved after analysis plan in the methods).

Details pertaining to the review and approval of study protocols have been added to the manuscript under the section you mention above.
Results

1. Review the terms microphysical risk environment or describe them in terms consistency with the changes you made in the title.

The terms throughout the paper do not conflict with our new title and accurately reflect the terms associated with the conceptual framework that we applied.

2. The p-value of 0.046 is statistically significant based on your definition cut off point and you may remove the term "marginally".

Thank you, we agree and the language throughout the manuscript has been changed to reflect this.

3. What was the median age at first commercial sexual act and first drug use among the participants?

These ages and their corresponding interquartile ranges (IQR’s) have been added to the results section, and these details also appear in Table 1.

Discussion

1. The study determined the "association" and not "impact". Do amend.

Thank you for your comment. The language in the discussions section has been amended to reflect this comment.

References