

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Prevalence and correlates of physical violence and rape among female sex workers in Ethiopia: A cross-sectional study with respondent-driven sampling from 11 major towns
AUTHORS	Amogne, Minilik; Balcha, Taye; Agardh, Anette

VERSION 1 – REVIEW

REVIEWER	Tommi Gaines University of California, San Diego U.S.A
REVIEW RETURNED	24-Dec-2018

GENERAL COMMENTS	<p>The purpose of this study was to examine the prevalence and correlates of violence (physical and sexual) among female sex workers in Ethiopia. Leveraging a large sample of 4900 FSWs, the study found prevalence of violence was associated with individual demographics and substance use. The strength of this study was its large sample size and representativeness of multiple towns in Ethiopia. However, this was also a major limitation in that the authors did not fully explore the effect that towns had on exposure to violence, particularly since the study was designed to have 400 women per town. An explanation of why the authors did not account for the clustering of women within the 11 towns in the logistic analysis is needed. As stated in the introduction, the 11 towns are distinct in that some are major towns and others are towns situated on transportation corridors. It seems plausible that there are conditions, unique to each town, that could be linked to physical and sexual violence, and hence exposure to violence may partially be explained by the town in which a woman worked in, however, the clustering effect was not accounted for in the statistical models. The result demonstrating that the venue in which sex work was solicited is associated with violence may reflect that some towns are more tolerant of having sex workers operate out of unlicensed venues and this may affect the type of interventions implemented in different towns. Additionally, authors should provide more discussion as to the types of “targeted efforts needed for prevention and harm reduction” as was stated in the abstract.</p> <p>Additional aspects that can improve the manuscript are detailed below:</p> <p>A description of the drug, khat, should be explained in the methods, rather than discussion, as some readers may be unfamiliar with what khat is and how commonly it is used within this region, particularly among sex workers or their clients.</p>
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	<p>Did the authors check for multicollinearity? It seems that the alcohol measures are correlated and that alcohol consumption and khat consumption is correlated, as indicated in the discussion.</p> <p>Did the authors check for interaction effects? For example, were higher income women more likely to report alcohol consumption or khat use and if so, does this (income) modify the association between the substance use variables and violence?</p> <p>Minor Define HED under results on page 15</p>
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REVIEWER	Tsitsi B Masvawure College of the Holy Cross, United States of America
REVIEW RETURNED	01-Feb-2019

GENERAL COMMENTS	<p>This is a well written paper. The authors clearly articulated the research question and presented their findings in a clear and concise manner. The study design is also well explained and the discussion section engages with relevant literature. The main strengths of the paper include:</p> <ol style="list-style-type: none"> 1. Large sample size that covers multiple regions in Ethiopia: the study was conducted with 4,900 female sex workers, who were recruited using rigorous methods (RDS). 2. Use of bivariate and multivariate logistic regressions: the statistical measures performed make sense and are done well and they are also well presented. All the tables used are well labeled and data presented in a simple and easy to interpret way. 3. Differentiation between physical violence and rape: I think that it is interesting that the authors split these variables in this way. The data already shows some interesting differences between factors associated with physical violence vs sexual violence. <p>A few suggestions for improving the paper:</p> <ol style="list-style-type: none"> 1. Variables: Perhaps the authors can explain why they measured physical violence "in the past year" and sexual violence "since sex selling started"? Why did they choose different time periods for these two variables? 2. Recruitment of RDS seeds: can the authors provide more details on how the initial seeds were selected? Did they work with sex worker organizations? Did they randomly recruit these seeds from different establishments etc etc? 3. Discussion: I think this section could be improved. The authors currently summarize their main findings in this section; however, it would be good if they could engage with the significance/implications of some of their findings more. What are the policy implications of their findings? How common/typical is it for women to use khat? What are some of the reasons that explain why female sex workers consume alcohol? In particular, why is "high episodic drinking" relevant and what is it about? The authors have to engage with these issues a lot more. Additionally, is there any literature on the types and severity of physical violence that sex workers experience? For instance, how much of the beatings are so severe that they require medical attention? In brief, the Discussion section should do more than summarize: it should analyze and engage with the issues and also consider the public health significance/policy significance of the findings. 4. Exposure vs experience: in some places (p13) the authors talk about "exposure to violence"; I think they should use "experienced
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	<p>violence" as the study assessed experiences of violence rather than exposure to violence.</p> <p>5. References: these need to be revised substantially as many are incomplete (e.g., missing dates of publication and urls for web-based resources) and others are incorrectly formatted (e.g., names of journals are pronouns and first letters of each word should be in upper case: "BMC Public Health" NOT "BMC public health").</p> <p>Best wishes with revisions.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Tommi Gaines

Institution and Country: University of California, San Diego

U.S.A

Dear reviewer 1

Thank you very much for your valuable comment and suggestions. I revised the paper based on your comment and suggestions. To reflect on some of your issues

1. Why did not the author compare results between towns?

Dear reviewer, It would have been very good if we did cluster level effect comparison as you suggested. Nevertheless, when the study was designed violence was measured with two variable which is Rape since they start selling sex and physical beating for the past 12 month. when the question was asked we did not specifically assess where they face the violence (in the current town or in other town) because FSWs are highly mobile from one town to another the violence might occur in another town. Therefore, concluding the violence to one town may create bias. Therefore, after considering this the authors agreed on objective of the paper which is to see the burden of violence on female sex workers in general and not to do comparison.

2. A description of the drug, khat, should be explained in the methods, rather than discussion, as some readers may be unfamiliar with what khat is and how commonly it is used within this region, particularly among sex workers or their clients.

I will explain Khat in the methods

3. Did the authors check for multicollinearity and interaction effects?

Even though we did not mention in the methods, before conducting the analysis we check for correlation between all the variables and the relation was low. specifically for alcohol and khat it was very low. In the discussion, I put my assumption which might describe the relations but further study should be conducted to come up with the contribution of Khat chewing. One of the effect of Khat chewing is making the individual more alert and talkative which might increase the incidence of violence experience but an independent study focusing on khat is needed. the current study will be the starting point.

In addition we also check for interaction effects and there was no interaction effects. Specifically for income and alcohol; in the bars most of the time it is the client who pays for the drinks and whether she has good income or not it might not have as such effect.

Reviewer: 2

Reviewer Name: Tsitsi B Masvawure

Institution and Country: College of the Holy Cross, United States of America

Please state any competing interests or state 'None declared': None declared

Dear reviewer

Thank you very much for your valuable comment and suggestions. I revised the paper based on your comment and suggestions. To reflect on some of your issues

A few suggestions for improving the paper:

1. Variables: Perhaps the authors can explain why they measured physical violence "in the past year" and sexual violence "since sex selling started"? Why did they choose different time periods for these two variables?

Dear reviewer

The incidence of rape and physical beating is different, physical beating might occur more frequently and could be forgotten easily, while Rape occur less frequently and is not forgotten easily. So to measure the general burden of both we specifically select the time period focusing on each violence effect.

2. Recruitment of RDS seeds: can the authors provide more details on how the initial seeds were selected? Did they work with sex worker organizations? Did they randomly recruit these seeds from different establishments etc etc?

Based on respondent driven sampling technique guide; Seeds were selected purposively to represent the geographical and occupational (e.g., brothel vs. street based) diversity of the target populations. Seeds were identified through formative assessments (key informant interviews and in-depth interviews) with key stakeholders and representatives of different key population groups before the actual data collection time.

I mention more about this on study design part

3. Discussion: I include all your comments to enrich the discussion part.

4. Exposure vs experience: It is a great point and I revised accordingly

5. References: I revised accordingly

VERSION 2 – REVIEW

REVIEWER	Tomm Gaines University of California San Diego U.S.A
REVIEW RETURNED	02-Mar-2019

GENERAL COMMENTS	<p>The authors were responsive to the reviewers' comments and provided detailed responses. Below are additional comments to help strengthen the manuscript and make it more informative.</p> <p>Under strength and limitations, can the authors be more specific as to the risk factor and outcome they are referencing in the last bullet? As highlighted by the authors, the temporal association (hence causality) cannot be determined with this study design. Inference based on these results seem most limited when considering the association between ever experiencing rape since initiating sex work (which could have occurred years prior to being surveyed for this study) and current socio-economic characteristics or substance use behaviors (e.g., income levels and drinking patterns). Being more explicit as to which risk factors and outcome variables the authors are alluding to in the last bullet will provide more clarity as to how these results may still inform prevention efforts within this population, particularly since we can't determine whether a woman's substance use made her more</p>
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	<p>vulnerable to sexual and/or physical violence or if women who had experienced sexual and/or physical assault were consuming alcohol and/or khat as a coping mechanism. Similarly a discussion of the author's inability to assess the directionality (e.g., which came first) between physical and/or sexual violence and substance use warrant more attention. In the limitations, the authors acknowledge their inability to assess temporal associations but that sentence was rather vague. These limitations should be discussed earlier by highlighting such limitations in the discussion where the authors raised the link between alcohol consumption and increased vulnerability. Conversely, women could have been consuming alcohol or khat as a way to self-medicate for symptoms associated with the trauma experienced through physical and/or sexual violence. A need to explore these issues earlier in the discussion is clearly needed.</p> <p>Further, although the authors addressed a comment that the reviewer made previously, the revised manuscript has not sufficiently discussed the types of "targeted efforts needed for prevention and harm reduction" in this population. Specifically, can the authors provide more discussion regarding intervention efforts that may work among women working on the street, red-light houses and local drinking houses? This group experienced more physical violence compared to women operating out of other venues. Within this geographical setting and population, what type of interventions could work with this subpopulation? Mobile interventions or peer-based interventions? More discussion is warranted.</p> <p>Spell out the abbreviation, HED, when it's first used in the discussion (see 5th paragraph).</p> <p>A number of grammatical errors were found in the new text added to the revised manuscript that should be fixed.</p>
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REVIEWER	Tsitsi B Masvawure College of the Holy Cross, USA
REVIEW RETURNED	22-Feb-2019

GENERAL COMMENTS	<p>The authors have made some changes to the paper based on my previous feedback. There are still a few outstanding issues:</p> <ol style="list-style-type: none"> 1. The new sections that were added need to be edited for grammar. Please copyedit these sections thoroughly as the errors in them are rather distracting. 2. Discussion: I appreciate that the authors attempted to respond to my "so what" question. However, the changes made are inadequate. I suggest that the authors devote a separate paragraph to discuss the broader significance of their findings. 3. I also suggest that the authors incorporate into the methods some of their responses to the methodological questions raised by myself and Reviewer 1. For instance, their responses about cluster effects and multicollinearity should be mentioned briefly in the methods section. Additionally, their response to my question about why physical violence is measured at "past year" while rape is "since started selling sex" should be included in the methods.
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VERSION 2 – AUTHOR RESPONSE

Comments from Reviewer1

1. Under strength and limitations, can the authors be more specific as to the risk factor and outcome they are referencing in the last bullet? As highlighted by the authors, the temporal association (hence causality) cannot be determined with this study design. Inference based on these results seem most limited when considering the association between ever experiencing rape since initiating sex work (which could have occurred years prior to being surveyed for this study) and current socio-economic characteristics or substance use behaviors (e.g., income levels and drinking patterns). Being more explicit as to which risk factors and outcome variables the authors are alluding to in the last bullet will provide more clarity as to how these results may still inform prevention efforts within this population, particularly since we can't determine whether a woman's substance use made her more vulnerable to sexual and/or physical violence or if women who had experienced sexual and/or physical assault were consuming alcohol and/or khat as a coping mechanism. Similarly a discussion of the author's inability to assess the directionality (e.g., which came first) between physical and/or sexual violence and substance use warrant more attention. In the limitations, the authors acknowledge their inability to assess temporal associations but that sentence was rather vague. These limitations should be discussed earlier by highlighting such limitations in the discussion where the authors raised the link between alcohol consumption and increased vulnerability. Conversely, women could have been consuming alcohol or khat as a way to self-medicate for symptoms associated with the trauma experienced through physical and/or sexual violence. A need to explore these issues earlier in the discussion is clearly needed.

Response:

Thank you, We have included the following text regarding this limitation in the discussion section on page 23.

" The extent to which alcohol use/Khat chewing are risk factors for the occurrence of experiences of violence must be interpreted with caution. Since physical beating was measured within the past 12 months and rape was measured since they started selling sex, the participants' current Khat chewing or alcohol consumption status might not be an accurate indicator of the consumption status at the time of the violence. In addition, the current use of substances might be a means to cope with the trauma related to the experience of violence."

Further, although the authors addressed a comment that the reviewer made previously, the revised manuscript has not sufficiently discussed the types of "targeted efforts needed for prevention and harm reduction" in this population. Specifically, can the authors provide more discussion regarding intervention efforts that may work among women working on the street, red-light houses and local drinking houses? This group experienced more physical violence compared to women operating out of other venues. Within this geographical setting and population, what type of interventions could work with this subpopulation? Mobile interventions or peer-based interventions? More discussion is warranted.

Response:

Thank you. We have included a text concerning the need for interventions on page 22, 23.

" On the other hand, FSWs who work on the street, in red-light houses and local drinking houses experience more violence. Most of these venues are located in the slum areas of the cities, and such areas are often the focus of police efforts to control various unwanted activities. In this regard, FSWs are one of the targets of the police and face harassment, beating, and arrest. Due to that, the reporting rate of violence is very poor, and the actions of the police also make the use of violence

seem legitimate among FSWs. Therefore, to minimize the harm in these localities, involving the police force in violence prevention activities is crucial and should be one of the first steps. In addition, a peer education program led by the sex workers could be an additional strategy. It could help FSWs to create information sharing platforms to discuss the incidences of violence, types of perpetrators, etc., which could raise awareness and help them to become more alert.

Comments from Reviewer2

1. The new sections that were added need to be edited for grammar. Please copyedit these sections thoroughly as the errors in them are rather distracting.

Response:

Thank you, We have edited the inserted sentences

2. Discussion: I appreciate that the authors attempted to respond to my "so what" question. However, the changes made are inadequate. I suggest that the authors devote a separate paragraph to discuss the broader significance of their findings.

Response:

Thank you, We have now included a separate section on page 24 where we discuss the general implication of the study findings.

3. I also suggest that the authors incorporate into the methods some of their responses to the methodological questions raised by myself and Reviewer 1. For instance, their responses about cluster effects and multicollinearity should be mentioned briefly in the methods section. Additionally, their response to my question about why physical violence is measured at "past year" while rape is "since started selling sex" should be included in the methods.

Response:

Thank you for this suggestion. We have added the following text in the methods section under "Variables" (page 7) to explain the reason for the use of different time periods to measure physical violence and rape:

"The differing time periods used to assess experiences of physical beating and rape were based on the presumed frequency of the two different types of violence. Physical beating might occur more frequently, while rape presumably occurs less frequently. Therefore, a longer time period might be needed to capture the experience of rape.

We have added the following text about the cluster effect on page 8 in the analysis description section:

"During data collection, we did not specifically assess where FSWs experienced the violence (in the current town or in another town). Because FSWs are highly mobile from one town to another, it would be biased to assume that their experiences of violence occurred in any one town. Therefore, during analysis, we did not conduct any cluster effect analysis".

Multicollinearity was assessed, and to clarify this, we have added the following text on page 8:

"In addition, correlation analysis was performed to examine potential multicollinearity; no correlation was found between the variables".

VERSION 3 – REVIEW

REVIEWER	Tommi Gaines University of California, San Diego United States of America
REVIEW RETURNED	19-Apr-2019

GENERAL COMMENTS	<p>Overall the authors have made substantial edits to address the comments from previous reviews. However, a few minor concerns that still exist and are detailed below.</p> <p>Under “Data Analysis”, 2nd paragraph and 2nd to last sentence: clarify the statement explaining the reason for not including township as a covariate in the statistical model. Rather than stating “it would be biased to assume that their experiences of violence occurred in any one town” consider revising it to read: “it would be inaccurate to assume that their experiences of violence occurred in the town from which they were sampled”. Within the same paragraph, clarify the statement “we did not conduct any cluster effect analysis”. The authors appear to be implying that the statistical analysis did not consider the clustering of FSWs within towns. Please clarify.</p> <p>In the Discussion, pg 22, can the authors provide an example of the harm reduction programs mentioned in the sentence regarding prevention activities for bar/hotel managers? Additionally, in the last paragraph of pg. 22, consider revising the statement from “FSWs are one of the targets of the police and face harassment, beating, and arrest” to “FSWs are targets of harassment, physical violence and arrest by police”. There are quite a few run on sentences in this paragraph. Consider breaking them up to help the reader comprehend the implications of your study results. For example, the sentence “Due to that, the reporting rate of violence is very poor, and the actions of the police also make the use of violence seem legitimate among FSWs.” Clarify if the reporting of violence is poor among FSWs only or among FSWs working in slum areas or among anyone inhabiting the slum areas. Thereafter you can start a new sentence regarding the perception that abusive police practices are permissible (and clarify if this perception is among FSWs or among those inhabiting the slum areas of the city).</p> <p>In Discussion, page 23, consider rephrasing the following sentence “current Khat chewing or alcohol consumption status might not be an accurate indicator of the consumption status” to “current Khat chewing or alcohol consumption status might not be an accurate indicator of their consumption patterns”</p> <p>In Discussion, page 24, clarify the statement “the HIV control program may not accomplish epidemic control”. The phrase “epidemic control” is rather vague. It seems the authors are trying to highlight the purpose of the HIV control program. If so, can they provide a different description of this program, such as “the HIV control program may not accomplish its goal of reducing the number of new infections”?</p> <p>A number of grammatical errors persist throughout the text that have not been fixed since the last resubmission. For example on page 23, “A large proportion of female sex workers (FSWs) use alcohol prior to or during sex to helps them to..” remove the letter</p>
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	“s” from the word “help”. On pg. 24 “signifying the need of different approaches to” change the word “of” to “for”. However, these are just a few examples and therefore I recommend the authors do a thorough read of the manuscript to catch these errors.
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REVIEWER	Tsitsi B Masvawure College of the Holy Cross, Worcester, MA, USA
REVIEW RETURNED	24-Apr-2019

GENERAL COMMENTS	The reviewer completed the checklist but made no further comments.
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VERSION 3 – AUTHOR RESPONSE

Comments from Reviewer 1

1. Under “Data Analysis”, 2nd paragraph and 2nd to last sentence: clarify the statement explaining the reason for not including township as a covariate in the statistical model. Rather than stating “it would be biased to assume that their experiences of violence occurred in any one town” consider revising it to read: “it would be inaccurate to assume that their experiences of violence occurred in the town from which they were sampled”. Within the same paragraph, clarify the statement “we did not conduct any cluster effect analysis”. The authors appear to be implying that the statistical analysis did not consider the clustering of FSWs within towns. Please clarify

Response:

Thank you, We have edited the sentence based on the comment

2. In the Discussion, pg 22, can the authors provide an example of the harm reduction programs mentioned in the sentence regarding prevention activities for bar/hotel managers? Additionally, in the last paragraph of pg. 22, consider revising the statement from “FSWs are one of the targets of the police and face harassment, beating, and arrest” to “FSWs are targets of harassment, physical violence and arrest by police”. There are quite a few run on sentences in this paragraph. Consider breaking them up to help the reader comprehend the implications of your study results. For example, the sentence “Due to that, the reporting rate of violence is very poor, and the actions of the police also make the use of violence seem legitimate among FSWs.” Clarify if the reporting of violence is poor among FSWs only or among FSWs working in slum areas or among anyone inhabiting the slum areas. Thereafter you can start a new sentence regarding the perception that abusive police practices are permissible (and clarify if this perception is among FSWs or among those inhabiting the slum areas of the city).

Response:

Thank you, We have edited the sentences accordingly

3. In Discussion, page 23, consider rephrasing the following sentence “current Khat chewing or alcohol consumption status might not be an accurate indicator of the consumption status” to “current Khat chewing or alcohol consumption status might not be an accurate indicator of their consumption patterns”

Response:

Thank you, We have edited the sentences accordingly

4. In Discussion, page 24, clarify the statement “the HIV control program may not accomplish epidemic control”. The phrase “epidemic control” is rather vague. It seems the authors are trying to

highlight the purpose of the HIV control program. If so, can they provide a different description of this program, such as “the HIV control program may not accomplish its goal of reducing the number of new infections”?

Response:

Thank you, We have edited the sentences accordingly