Author's response to reviews

Title: Induced abortion, pregnancy loss and intimate partner violence in Tanzania: a population based study

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Author's response to reviews: see over
BMC Response to reviewer’s comments

First of all, we want to thank the two reviewers „Sia Msuya“ and „Laura McCloskey“ for their helpful reviews and suggestions for improvement. Please find our answers to each question below.

Comments by Sia Msuya

1. What was the time period a woman needed to have lived with a partner to be considered she was in regular partnership considered in the data collection? Did the authors take this into consideration? E.g. a woman could have lived with a partner for 2 weeks, another for a month and another for 6 months and all may report the partners are regular partners. This definition is important for replication of research by other researchers.

The definition of whether a woman was ever partnered or not relied on women responding positively that they are or ever were married, live or lived with a partner or currently have a regular partner or sexual relationship. No distinction was made regarding the duration of the relationship. We have updated this information on page 9.

2. The study sites are not well elaborated for the reader. For example the authors reported that 22 wards were selected from all the districts in Dar es Salaam and Mbeya. It would be clearer if they can elaborate how many districts and wards are in Dar es Salaam and in Mbeya regions.

On page 7 and 8 we have added the following information for further clarification: “Dar es Salaam is made up of three municipals which are further subdivided into a total of ten divisions. These ten divisions are comprised of a total of 73 wards. Each ward in urban Dar es Salaam is further subdivided into streets, which itself are further subdivided into ten cell units. In rural Dar es Salaam wards are sub-divided into about 370 villages, which are also further subdivided into ten cell units. The later will have about 10-50 household. Mbeya region has six districts, each of which is further divided into divisions, which are then subdivided into wards. In the divisions Mbeya Urban and Mbeya Rural there are 53 wards, which further subdivide themselves.”

3. The authors also reported that women were select ed from ‘rural province town of Mbeya’ page 5. What do they mean by that statement?

In most countries in the WHO Multi Country study, population-based household surveys were conducted in the capital city and one province or region, usually with urban and rural populations. For clarity, we have changed this sentence on page 7 to “...the capital Dar es Salaam and Mbeya region”.

4. To my understanding administratively Tanzania is subdivided into regions which are further subdivided into districts, wards and streets. By province do the authors mean Mbeya region?

Yes, we meant region and changed it accordingly throughout the whole text.

5. Further down the authors wrote that women were selected from urban and rural district in Mbeya. Which districts???

As outlined under point2, we have added this information on Page 7 and 8.
6. ‘The two-stage cluster sampling procedure was used to select the participants’. Can the authors elaborate the sampling in more detail?

We have added this information on Page 7 and 8 and hope that together with the additional information provided to address point 2 the sampling strategy is now clear.

7. The authors reported that to get independent predictors of pregnancy loss (stillbirths/miscarriage) they controlled for ‘commonly recognized explanatory factors such as age, education, socio-economic status, marital status, and parity’. However literature shows that the main causes of stillbirths (pregnancy loss) are; complications associated with delivery (intrapartum causes), maternal infections during pregnancy, women medical condition during pregnancy for example hypertension, maternal nutrition status and prior history of stillbirths or adverse pregnancy outcomes [Lawn JE et al, 2011; Bhutta ZA et al, 2011 & McClure EM et al, 2009]. Was this information collected to be able to control for in the multivariable analysis?

The reviewer is right that the above mentioned causes are equally, if not more important direct explanations for stillbirth and in some cases pregnancy loss. Unfortunately, these were not measured in the survey and therefore cannot be used in the multivariate analysis.

We hope that by adding a section on the different pathways on how intimate partner violence is associated pregnancy loss and induced abortion in the introduction, it will become clear that while we did not measure the above mentioned explanatory factors, they might be indirectly measured as well since they lie on the causal pathway between intimate partner violence and pregnancy loss or induced abortion. For example, prior studies have shown that intimate partner violence is known to be associated with hypertension, complications at delivery, maternal nutrition status or delivering outside a health care facility.

Results
8. The first paragraph of the result section is difficult to understand. The numbers do not tally up.

There is a mismatch between what is presented in Table 1 and what is presented in the 1st paragraph of the results section.

- For example the authors reported that 2501 of the participating women had been ever been pregnant and reported to ever had regular partners. Yet in the Table the number presented is 2492.

The number stated in the Table is correct and the number in the text was misleading. We have changed this to 2492 women who have ever been partnered and ever been pregnant (see page 11).

- The authors reported 568 women reported a history of pregnancy loss; out of those 448 reported a history of miscarriage and 145 reported a history of stillbirths the total which is 593. Why is there a discrepancy in numbers?

The information on page 11 would have been correct since 25 women (1%) experienced both a miscarriage and a stillbirth, which explains the apparent discrepancy of numbers in the first paragraph.

We have nevertheless deleted the separate mentioning of miscarriage and stillbirth since it might be confusing, as pointed out at point 22 that we are still reporting on miscarriage and stillbirth separately although stating that we will only look at it under the combined term pregnancy loss.

9. Looking at Table number 1 it depicts that women of low socio-economic status have a higher prevalence of pregnancy loss (71.9%) and induced abortions (63.9%) compared to women with
medium (19.1% & 22.3%) or high (9.0% & 13.9%) socioeconomic status (SES) respectively. Is that so? If that is a case it conflicts with the discussion on page 10, 2nd paragraph.

You are correct that women with of low socio-economic status have a higher prevalence of pregnancy loss and abortion compared to women with medium or high socio-economic status. Still, women of low socio-economic status make up 76.5 percent of the sample, which implies that the prevalence of pregnancy loss and abortion is lower among women of low socio-economic status compared to women of middle and high socio-economic status. This is verified in Table 3 and therefore should not conflict with the discussion.

10. It would clearer to the reader if the authors put unadjusted Odds Ratio with their 95% confidence intervals in Table 1 instead of only showing the p-values.

We have removed the p-values from this Table to make is a sole description of the demographic characteristics of the sample and of women who reported a pregnancy loss and an induced abortion. We have added the crude odds ratio to Table 3 and made subsequent changes to the result section.

11. The second paragraph describing the association between intimate partner violence with pregnancy loss or induced abortion is not clear, there are repetitions

To avoid confusion and also to address McCloskey's point, we have deleted the variable “any violence” from the Table and only focused on physical and sexual intimate partner violence or both. In addition, we have made changes in the first paragraph of the results section, also adding the information on how many women experienced both physical and sexual intimate partner violence and how many women only experienced either physical or sexual intimate partner violence. We have also added this information to the Table.

12. Regarding Table 2, what is the difference between any IPV in column 2 and both physical and sexual IPV in column number 5?

The difference would have been that any experience of intimate partner violence relates to having experienced either physical or sexual intimate partner violence or having experienced both. Having experienced both physical and sexual violence refers only to women who have experienced both of these two forms of violence. We have deleted the information on any intimate partner violence, as outlined in point 11, to avoid confusion.

13. In Table 3 the authors have introduced new terms i.e. involuntary and voluntary pregnancy loss, the terms which were not introduced in the definition of key measures used in analysis. What do they mean by these?

We have changed this to pregnancy loss and induced abortion.

Discussion
There is lack of flow in this section.

14. In the first paragraph of this section the authors reported that the prevalence of intimate partner violence is over one third and this is higher than prevalence of 36% in Namibia, 37% in Brazil and 47% in rural Thailand. What is one third in this population?

We have changed this to “Reports of intimate partner violence were also high, with 49 percent of ever pregnant, ever partnered women having reported physical or sexual violence by a partner.”
15. In the same paragraph the authors reported that the proportion of induced abortion and pregnancy loss are comparably high compared to other countries in the WHO multi country study. Can you show the proportion in other countries??

We have added this information

16. ‘The results of this study clearly show that intimate partner violence (IPV) is a MAJOR factor in explaining pregnancy loss and induced abortion in this population’ This is a very strong statement given that important factors associated with pregnancy loss were not controlled for in the analysis of this paper and the design of the study.

We have changed the wording in the discussion. To reflect the lack of information on other important factors we could not control for we also added it to the limitation section of the discussion on page 13. In addition, we hope that the inclusion of the direct and indirect pathways showing how intimate partner violence is associated pregnancy loss and induced abortion in the introduction will provide information on how intimate partner violence also influence the factors that are commonly known to cause pregnancy loss.

17. The statement about induced abortion and socio-economic status is contradictory in page 10 if compared to results in Table 1

Please see our response to point 9. Nevertheless, we have reworded the paragraph since we realized that it can potentially lead to misunderstandings.

18. In page 10 the authors explained that fewer women of low SES reported induced abortions compared to others because they might feel less safe to report an induced abortion or are less likely to afford an induced abortion. Is there any literature supporting this finding? Perhaps women with low SES resort more to unsafe abortion compared to others thus they may end with more complications and mortality??

We have changed this discussion point to reflect that the difference found might be due to an actual difference or a difference due to reporting. We have also added citations outlining the difficulties in measuring induced abortions in surveys.

19. I find there is conflicting information in the discussion. In page 11 the authors are reporting that childlessness is stigmatized in Tanzania especially among married/cohabiting women. Yet in page 10 the authors reported that the general societal attitude is that pregnancies should be concealed. Are pregnancies concealed even among women in stable partnership like in this population or is it an observation among the adolescents and probably unmarried women???

Respondents in the in-depth qualitative study in Tanzania by Haws et al in Social Science and Medicine (71/2010), universally reported concealing pregnancy except from few trusted individuals. Possible reason given was that it protects them from jealous childless women, the shame that a pregnancy might not last or that pregnancy announce themselves when they show (Page 1767-68 of the article). The co-existence of stigma of childlessness and concealing of pregnancies therefore do not seem to contradict each other. We have nevertheless changed the wording on the respective pages to clarify this.

20. Limitations of the study did not address major factors associated with pregnancy loss

We have now included this information on page 13.
Minor Revisions

21. Please do not start a sentence with a number

We have changed this.

22. In page 7 the authors reported that is difficult for Tanzanian women to differentiate between miscarriage and stillbirths and the term pregnancy loss was used to combine the two concepts. So from this point onward the reader is expecting to see the term 'pregnancy loss' being used but the authors are using miscarriage and stillbirth in results and discussion.

We have changed this in the text and now only report on pregnancy loss.

23. Use the word ‘association’ when discussing about IPV and induced abortion instead of ‘link’

We have made this change throughout the text

24. Use proportion or prevalence instead of a rate when giving results

We have changed this throughout the text.

25. Repetition in some references e.g. 14 and 19

We have changed this.

Tables:

26. In Table 1 what does province mean?? In Tanzania you have regions and districts or rural and urban setting.

We have changed this to Dar es Salaam and Mbeya

27. Be consistent with decimal places

We have now consistently applied two decimal places to each percentage throughout the text and tables.

28. Table 3: The title should indicate that the results are of logistic regression for independent factors associated with pregnancy loss and induced abortion

We have changed the title to “Crude and relative odds ratios (and 95% confidence Intervals) from binary and logistic regression analyses identifying factors associated with ever having experienced an induced abortion and pregnancy loss”
Comments by Laura Mc Closkey

Minor essential changes recommended

Abstract
1. The first paragraph combines “induced abortion and pregnancy loss.” Perhaps the authors mean “pregnancy loss from other causes.”

We have changed this accordingly.

2. Methods: 1st sentence analyzes

We have changed this accordingly.

3. If as many as 41% of the women have IPV there is the possibility of a ceiling effect, which could actually obscure findings

We have measured intimate partner violence as ever experienced physical and/or sexual violence by an intimate partner to make it comparable to other studies that have used the same data and that have previously explored the associations with induced abortion and pregnancy loss, for example see Garcia-Moreno 2005 and Fanslow 2008. Despite a fairly high prevalence of intimate partner violence in our sample we did not detect a ceiling effect in this particular study. We do agree though that future studies should investigate whether, for example, more severe forms of physical and sexual violence would lead to even stronger effects.

4. Was any effort made to match the time periods of violence exposure and pregnancy loss?

This was unfortunately not possible. In line with other studies on this issue we only looked at ever experiencing intimate partner violence and ever having an induced abortion and/or pregnancy loss.

5. Start sentence with “Twenty-three percent” not the number 23% Introduction

We have changed this accordingly.

6. Reference to footnote 11: this was the only study performed in sub-Saharan Africa and what did they find? Need to include somewhat more detail while citing sources.

This was the only study in sub-Saharan Africa using a representative survey design. We have included more details on the studies we are citing.

7. Could authors provide more information about the conditions of obtaining an abortion in Tanzania? Since they are illegal this is critical information. Report on Footnote 14, and expand. This seems pretty important to include.

We have expanded this section and provided more on the different unsafe abortion practices and the potential social consequences of illegal abortions in this setting.

Discretionary changes recommended:
8. No hypothesis is offered as to why IPV would lead to abortions or miscarriages. Authors should provide some framework for the findings. Also, IPV should differentially result in increased abortion v. miscarriages because with IPV comes unwanted sex and therefore unwanted pregnancy so women would actively seek a solution. It’s unclear how IPV is a catalyst for miscarriages, although there are some researchers who have explored this (see E. Lieberman et al).

Further references to IPV in Tanzania and reproductive health are:

We have inserted different direct and indirect pathways on how intimate partner violence and pregnancy loss and induced abortions are linked. We appreciate that you directed us to these helpful references, which we have now included.

Methods
9. The compliance rate ranges from 97% to 100%, which is unusually high. What was the compensation offered to participants if any?

Only 27 household refused to participate, 22 in Dar es Salaam and 7 in Mbeya, which made up less than one percent of the households sampled. Among the individual women sampled from each household 120 women refused, were not available or did not complete the interview, 72 in Dar es Salaam and 48 in Mbeya. No compensation was offered to the participants. We have added this on page 8.

10. Was any attempt made to pilot some of the terms relating to pregnancy loss in particular? How do Tanzanian women talk about this issue? Do they share the same perspective on “ever being pregnant” with women from other nationalities? Of course the data have been collected and it would be too late to find this out from the survey but if there were some qualitative notes in the records it might be worth including. In any event, a topic to address in the Discussion.

Unfortunately this survey did not set pilot these terms in particular. As one of the first surveys to measure intimate partner violence and violence against women across several countries, the focus was on those measurements. Measurements for pregnancy loss and induced abortion were taken from the Demographic and Health Survey. Also, the study by Haws et al, which suggests that Tanzanian women have a different perspective on “Ever being pregnant”, “Abortion” and “Pregnancy loss” only came out recently, to challenge the questions used by the Demographic and Health Survey in Tanzania.

11. The authors state that they referred women to domestic violence services however in the area of Tanzania we worked in around the same time (Moshi) there were none. What exact services were available to the women? Did the researchers build capacity in this area by training counselors?

In Mbeya there were no domestic violence services per se, but there were women’s organizations that could also deal with issues of domestic violence to which women were referred to. Also, provisions were made in case women reported suicidal thoughts. We have included this information on page 8.

Results
12. P. 8 there is a better way to say “while only ever experiencing any form of IPV...” rewrite
We rephrased this sentence

13. In the first paragraph of the Results the authors state that 41% of women reported IPV, 21% sexual assault, etc. It is unclear whether they mean “only” IPV excluding sexual assault. That would be preferable; otherwise these groups are overlapping and comparing non-exclusive groups raises problems.

We have deleted the reference to any intimate partner violence in Table 2 since it caused too much confusion.

Further Minor Essential changes recommended:
14. In Table 1 there is one confusing statistic for “currently married”: For women with an abortion the difference is minuscule 50.3 v 49.1 yet the p value is listed as p=.038, whereas for the other group of women the difference is large but non-significant 61.4 v 38.6. Was there a notation mistake here?

We have run the analysis again and found the same results. While the difference in marital status seems to be larger for women who reported a pregnancy loss than women who reported an abortion, we assume that the reason why the former is insignificant while the later is significant is due to the fact that by far more women reported a pregnancy loss than an induced abortion. Furthermore, when swapping showing the percentages when investigating how many married women reported a pregnancy loss compared to not married women the difference between marital status and pregnancy loss does not appear as stark, showing that 24 percent of currently married women and 21 percent of the not currently married women report a pregnancy loss. Among women who reported an abortion the difference is larger, with 24 women reporting to be currently married versus 21 women who do not report being currently married. However, due to the request of reviewer 1 we do not report the p-value anymore and have inserted crude odds ratios in Table 3 instead.

15. What percent of women report both wanted and unwanted lost pregnancies?

We have added this information in the Tables in addition to the results section.

16. Table 2 is a bit confusing to read, but the main problem is that the types of abuse are all divided for comparison when they actually overlap substantially as discussed in the descriptives. With 41% of the women having physical abuse and 49% having either physical or sexual it appears that there was significant overlap. There is no theory per se that would separate the effects of sexual assault (within an intimate relationship) from physical abuse, but perhaps the authors could offer a reason to separate them. I would recommend dropping the comparisons and sticking with one measure.

We hope that by adding the different pathways on how intimate partner violence effects pregnancy loss and induced abortion in the introduction the reason for the distinction between physical and sexual violence becomes clearer. The reviewer is of course correct in stating that there is a substantial overlap, which made us decide to not differentiate in the multivariate analysis. Also, given the confusion this table caused we have removed the variable “any intimate partner violence”.

17. In Table 3 authors need to clarify the referent (REF) for at least some of the variables. Also when there are 3 values for a variable and an OR is presented which value is being compared? (For instance, “number of live born children”)
We have included the referent category for variable where we have overseen it. Number of children were measured as a continuous variable since there is no clarity on whether a cut off should be made at 1, 2,3 or 6 children.

18. Since Table 1 reveals so few differences between women who have had an abortion and women who have lost a pregnancy accidentally (presumably) would it make sense to collapse the groups of women? The reasons for their pregnancy loss might be quite different, however.

We have considered this as well, but since the pathways between intimate partner violence and pregnancy loss and induced abortion are different, we want to keep them separate.

19. The model in Table 3 does not appear theoretically motivated. What is the rationale for comparing these two groups on the SES variables after they’ve shown to be comparable in Table 1.

We hope this is clearer now, after we outlined the potential pathways in the introduction, by providing more background to other studies which investigated this issue and by moving the crude odds ratios to Table 3

Further Discretionary changes recommended

Discussion

20. The paper would be more helpful if it included some information on the access to abortion services in these regions of Tanzania. The authors indicate that many of the abortions are illegal and unsafe: is there any evidence for this, even anecdotal? Any national statistics?

We have provided more information on abortions in Tanzania in the introduction (page 6 and 7).

21. While the authors note that women in Tanzania have substantial rates of abortion, the prevalence rate is much lower than rates in countries where it is legal (e.g., Ukraine @ 50%; @15% South Africa; @25% Sweden).

It is correct that the rates of abortions are higher in countries where abortions are legal. Given that abortions are illegal in Tanzania, it is highly likely that the rates are biased by underreporting. Upon suggestion from Sia Msuya we have added information on other African countries in which the WHO multi-country study was conducted. We hope that this provides sufficient context to why we are stating that the numbers are substantial.

22. What do the authors mean by “The association between induced abortion and socio-economic status in particular has to be interpreted cautiously”? Poor women report both miscarriages and abortions more often, but it’s unclear what the authors mean by a cautious interpretation. Lack of transportation may be one disadvantage of women living in poverty, but it is also part of lower SES resources.

We have re-phrased this paragraph to address the questions it has raised.

23. On p. 10 the authors state that miscarriages were more common among women kicked in abdomen. This piece of data was not presented in the Results, however, and the Discussion is not the place to introduce new findings. Need to provide the statistic in the Results or delete sentence.

This information is not part of the results of this study and is now referenced accordingly.
24. Towards the end of the Discussion the authors state that women in Tanzania have poor contraception options. This issue is overlooked earlier in the paper. There should be some mention of this topic as one overarching rationale for seeking abortion in the Intro. Also, how are the authors certain that miscarriages are not actually intended losses. Are there home remedies for pregnancy (e.g., abortifacients) that some women might take?

We have added the information on contraception into the pathways on how intimate partner violence is associated with pregnancy loss and abortion, which we have now inserted into the introduction. Also, we included the possibility of pregnancy losses being intended into the limitation section.