Author's response to reviews

Title: Intimate partner violence and infant morbidity: evidence of an association from a population-based study in eastern Uganda in 2003

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Author's response to reviews: see over
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The Editorial Team
BMC Pediatrics

Re: MS: 1541248743125261 - Intimate partner violence and infant morbidity: evidence of an association from a population-based study in eastern Uganda in 2003

We are pleased to submit the 2nd version of the above-mentioned manuscript after taking into account the comments of the reviewers. We would like to thank the reviewers for the valuable and constructive comments and suggestions. We hope that the revised manuscript meets your satisfaction.

We look forward to your kind considerations.

Yours sincerely,

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Reviewer's report: Rodolfo Pena Reviewer

1. The research question was posed and well defined; “..Is it that intimate partner violence increases the frequency of common childhood illnesses that eventually lead to death?” However it suggests the association between two variables, which should be answered by an analytical study (case-control, cohort). And it has been not the designed use in this study. Furthermore the way that the sample size was set-up, is in concordance with the objective to assess or investigate the prevalence of intimate partner violence, rather than to looks with associations (see page 6 para 2 in methods), thus it is suggested to rephrase the research question— (major compulsory revision)

The research question was revised as follows: Is it that intimate partner violence is associated with common childhood illnesses that eventually lead to death?

2.1 The study area was described. However, despite that the 4 counties are mentioned, there is not any information in the total number of villages in the Mbale district? Moreover, only Mbale town and the surroundings of Bungokho county were purposively” selected; without further information why? Because they had better accessibility? How much do they differ from the two others which were not selected? Which were the reasons not to enrolled Bubulo and Manjiya? And it should be add important piece of information on prevalent diseases especially among small kids. (major compulsory revision)

The following sections were revised as follows:
Mbale District is situated in eastern Uganda and borders the Republic of Kenya and Mt Elgon to the east. It has a population of over 720 000 of which 90% is rural and predominantly Bagisu who speak Lumasaba. Children less than 15 years comprise 51.8 percent of the population. The literacy rate is 64 and 49 percent for males and females, respectively. The prevalence of HIV was 5.6 percent in 2003. The main economic activity is subsistence farming. Mbale District consisted of 1,448 villages distributed into 4 counties namely Bubulo, Bungokho, Manjiya, and Mbale town. The major causes of illness in under-5 children were malaria, acute respiratory infections, measles, malnutrition and diarrhoea.

The study was a cross sectional household survey of women with infants carried out during November and December 2003. It was conducted as part of a collaborative research project between the Department of Paediatrics and Child Health, Makerere University and the Centre for International Health, University of Bergen. The field site for the research project was Mbale District. Mbale town and the surrounding Bungokho county were purposively selected because they were in the field site of the project and also to provide a rural and an urban sample. Bungokho county was similar to the other counties of Mbale district except that it had better access to Mbale town and its services.
2.2 The target population was not properly described, since it is mentioned that “Only households that fulfilled the selection criteria were selected. The women who resided in the selected households in Mbale town or Bungokho county and who were 18 years and above with a child aged one year or less were invited to participate in the study” (see page 4 last para and page 5 first para in methods). What was the age-range for the selected women? Does a woman of 60 or 80 years could be included? Moreover, there is an important contradiction between the data shown in table 1 and the criteria of selection above. In table 1 the age of the mothers was dichotomized in 15-24 and 25-45. There is not a single line of information on the number of children less than one year of age in the Mbale district too. This information should also be giving either estimated or projected. Finally, there is not any information what to do if a mother had two kids less than one year of age? Either because very short birth spacing or for having twins. How this was handel?

(major compulsory revision)

The following section was revised as follows:
The target population was women between 15 and 45 years of age; who resided in the selected households in Mbale town or Bungokho county; and whose youngest child was aged one year or less. After consenting, the women were interviewed in their homes. In case of twins, one child was selected randomly.
The total number of children under 1 year was not available but we have included the population under 15 years of age.

2.3 The study period has not been mentioned at all! Only in table 1 and 4…Mbale Uganda 2003?
(major compulsory revision)

The statement on study design has been revised as follows:
The study was a cross sectional household survey of women with infants carried out during November and December 2003.

2.4 Sample size:
In the article it is state that “We based our sample size calculations of the prevalence of intimate partner violence in rural and urban women in Mbale. We used an expected proportion of intimate partner violence of 0.15 and a total width of 0.10 (see page 6 para 6 in methods). Here there are several concerns: it is expected to have the same prevalence of IPV in urban and rural areas? There is not any difference? What ever the answer will be it needs to be supported; thus, the expected and selected proportion of intimate violence of 15% and a total width of 10%, is not clearly described (Discretionary revision). My calculation of the sample size gave 392 subjects and not 397 as you’re reported (minor essential revision)

The section on sample size was revised:
We based our sample size calculation on estimation of the prevalence of intimate partner violence in rural and urban women in Mbale. We used an expected
proportion of intimate partner violence of 0.15 estimated from the study by Koenig et al.[6] and the reports from neighbouring Tanzania.[8] We set the degree of precision at the standard of 0.5 and the confidence level at 95%, and incorporated a design effect of 2.0 because of the cluster design. The estimated sample size was 392 but we increased the sample size to 476 to cater for problems that might occur in recruitment. Since some women were not available for interview, and we failed to get replacements for them, the final sample size was 457 women.

2.5 Plan of Data Analysis
2.5.1 A detailed description of all independent variables used in the study was done; however there is not any description on how the dependent variables were operationalized, e.g.: IPV (how it was defined; and what and why the classification used as presented in table 2), socioeconomic status, mother education among others. (major compulsory revision)

The section was revised as follows:
We used an interviewer-administered questionnaire that included items on socio-demographic characteristics of the woman and her husband and intimate partner violence. Data on age, education and parity was collected on a continuous scale and categorized during analysis. Women were asked about their experience of male against female intimate partner violence involving their husbands over the past 12 months and ever. Women were asked the following questions: Has your husband ever beaten you up? Why did he beat you? Has your husband beaten you up during the past year? Have you ever been threatened by a weapon or had a weapon used against you by your husband? What was the nature of the weapon? Have you ever been kicked, bitten or hit by your husband? Have you ever been raped or otherwise sexually abused by your husband?

Lifetime intimate partner violence was defined as lifetime occurrence of any form of intimate partner violence. A variable of household socio-economic status was developed by use of principal components analysis with variables on asset ownership (bicycle, radio, television, motorcycle, car/truck, land), materials of the dwelling structure (floor, wall, roof) and ownership of poultry and intimate partner animals. We used principal components analysis to divide the households into quintiles of socio-economic status, with (1) poorest and (5) least poor. We categorised quintiles 1-3 as “poorest” and 4-5 as “least poor” which suggests that the population was generally poor.

Women were also interviewed on the characteristics of the youngest child namely age, sex, method of feeding, immunization, history of diarrhoea (two or more loose stools per day), cough with fast breathing or fever in the past two weeks. Children were weighed in their underpants using a hanging Salter scale and their lengths were measured using a stadiometer. We followed guidelines established by the World Health Organization for the collection of sensitive information on intimate partner violence[16].
2.5.2 Justify why of the use of a bivariate and multivariate analysis. Is it for confounding control? It is the need to explained which and why statistics were used (OR and adjusted OR) and its respective 95% confidence intervals. In pag 6 at the end of para 2, it is state “For each dependent variable, all the independent variables were then entered into a model for logistic regression”, such stamen needs to be clarified by which criteria were used in order to entered a dependent variable into the model? Especially if a bi-variate analyses was performed previously and it may tell whether there is or not any relation between dependent and independent variables; or if there is any reason to be a potential confounder factor?

(major compulsory revision)

The section was revised as follows:
A separate analysis was performed for each dependent variable against the independent variables that included the characteristics of the women, their husbands and infants. A bivariate analysis was performed between each dependent variable and the independent variables so as to determine the independent variables that were associated with each dependent variable. The independent variables that were significantly associated with each dependent variable were potential confounders and were entered into a model for logistic regression. When ILL was used as the dependent variable, its component variables (fever, cough, fast breathing, diarrhoea) were not included in the analysis so as to avoid interaction. Odds ratios were used to estimate the strength of the associations while 95% confidence intervals were used for significance testing.

2.5.3 The phrase in page 6 para 2 in methods: “When ILL was used as the dependent variable, its component variables (fever, cough, fast breathing and diarrhea) were not included in the analysis”, it is not consistent with this: “The variable ILL was dichotomized into not/mildly ILL consisting of 0 or 1 symptom or moderately ILL consisting of 2 to 4 symptoms. It needs more explanation why? How did arrived to a sensitivity of 57% and specificity of 59%? What was the gold standard for it?

(major compulsory revision)

The section was revised as follows:
We combined the common childhood illnesses (fever, cough, fast breathing, diarrhoea) into one variable called ILL. The variable ILL was dichotomised into not/mildly ILL consisting of 0 or 1 symptom or moderately ILL consisting of 2 to 4 symptoms. This level of categorization was chosen because it had the best combination of sensitivity (57%) and specificity (59%) with intimate partner violence as outcome. The dependent variables were ILL, FEVER, COUGH WITH FAST BREATHING, DIARRHOEA, EXCLUSIVE BREASTFEEDING, COMPLETE VACCINATION, UNDERWEIGHT, WASTING, and STUNTING.
2.5.4 In phrase as this: “A separate analysis was performed for each dependent variable against the independent variables that included the characteristics of the women, men and infants”, the word men refers to the husband’s woman interviewed?

(minor essential revision)

**The revision was made.**

2.6 Results
2.6.1 In table 1, there are the following recommendations:
- The title has to be adjusted in relation whether there is only the first descriptive table of the baseline characteristics of women, husbands and children; or a regression logistic model results or both?
(minor essential revision)
- The table present a bi-variate and multivariate analyses, having several missing Adjusted OR, it is not cleared what is in the model or what was adjusted for?
(major compulsory revision)

**The tables have been revised according to the suggestions.**

2.6.2 Table 2 and 3 can be collapsed in one. It could a descriptive initial table as recommend in the item 2.6.1 above. Moreover, it is important to clarify that the column percentage does not sum 100% due to multi-chooses.
(major compulsory revision)

**Tables 2 and 3 were incorporated into a new descriptive Table 1.**

2.6.3 Table 4, which is the core one in the paper, needs the following revision:
- Since in this table are all the variables used to adjust model. It is important, in the first place to clarify that lifetime IPV was used as the major exposure variable.
- It is not clear which are the adjusted variables used in the model? Thus, it is strongly recommend specifying in the bottom of this table the variables used for adjust the relation between life IPV and the dependent variables, showing in the table 4.
(major compulsory revision)

**The changes have been made to Table 4.**

3 Are the data sound and well controlled
Yes, there is information on. However it is recommended to add more information how the data quality control was performed. In other words, do they performed cross-checking during data collection, whether data checking rules were build in EPIDATA for data entering control?
(minor essential revision)

**The section was revised as follows:**
Data were entered into EPIDATA and then exported to Stata version 8.0 for analysis that adjusted for the design effect. Data quality was ensured through
careful selection and training of the research assistants, supervision, field editing, and by use of the check programme at data entry.

4 Does the manuscript adhere to the relevant standards for reporting and data deposition? In general the manuscript is showing adherence to standards. However the tables have to be adjusted according to the above suggestion giving (see section 2.6 in this report).
(minor essential revision)

The tables have been revised accordingly.

5 Are the discussion and conclusions well balanced and adequately supported by the data?
5.1 The main findings were presented, comparison with other studies was done, and limitations were reported. But, it was not presenting any discussion on which are the potential biases in the study, and how they can affect these findings.
(major compulsory revision)

The potential biases were presented in the section on limitations on page 11.

5.2 It is recommended to use only significance, if there is any; and not to use statistical significance, since the word statistical is redundant.
(minor essential revision)

The correction has been made.

6 Do the title and abstract accurately convey what has been found?
Title: “Intimate partner violence and infant morbidity: Evidence of an association from a population base study in eastern Uganda”. It is clear and contains the key words of the study, the only recommendation is to add the study period: 2003.
(Discritionary revision)

The correction was made.

Abstract: it is structured, which I guess in accordance with the requirement of the journal. Thus: Background and Methods are Ok. In the results section it is mentioned the mean age of women and the mean age for infants, however in the results section of the article page 8, the only reported mean age is for the children.
(minor essential revision)

The correction was made.

6. Is the writing acceptable?
Yes, It is. However it is always recommend sending the final version for English language revision. Unable to decide on acceptance or rejection until the authors have responded to the major
Reviewer's report: Anita Raj

General
Overall, the manuscript offers important information and findings relevant to the fields of maternal and child health and pediatrics. The work can be improved upon with a more structured and focused introduction and greater clarity of methods and analyses. The abstract should then be altered accordingly.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
Introduction: Given your population is mothers of infants, focus on IPV prevalence among pregnant and new mothers would help support your outline justifying the need for this work. Additionally, the background should be specific that IPV has been linked with increased likelihood of mortality in (specify countries here), but research on IPV and infant morbidity in these countries is lacking. This lack of research is why your work is important. That idea is getting lost in your more general lit review.

The background was revised to include research from Uganda on IPV during pregnancy. In addition, the lack of research on IPV and infant morbidity is included.

Methods: Sampling and procedure seemed solid, but subheadings can help the reader know the focus of your paragraphs in this section. Your measures really need to be specified more directly. IPV questions should be stated even if you have them in your table later.

Subheadings have been included. The variables including IPV have been specified.

Analyses: Your outcomes include both infant morbidity data (e.g., illness, fever, wasting) and maternal/paternal health behaviors on behalf of the infant (i.e., breastfeeding, vaccinations). The latter does not seem like relevant child health outcomes but likely relevant covariates to consider. Adjusted analyses are unclear throughout the paper; I have no idea what you adjusted for and why.

Breastfeeding and vaccination were included because they may be intermediate outcomes preceding infant morbidity. The section on analysis and the tables were revised to clearly bring out the crude and adjusted analyses.

Results: Give age range of infants. When discussing associations, be consistent; always note independent variables before dependent variables. Certain associations significant in crude analyses were lost in adjusted analyses; that is not clearly stated in your results. What did you adjust for?

The age range of the infants was 0 to 12 months. The independent variables have been placed before dependent variables. The change in significance between the crude and adjusted analyses was reported in the results.
Discussion: More analysis on what you found versus what you did not find is needed, as is analysis why certain significant findings are lost in adjusted analyses. Also, I think there is some lit from the US (PRAMS) at least on IPV and child health outcomes that you need to include. Look up Jay Silverman’s work. Good presentation of different reasons for results; good review of limitations.

**The works of Jay Silverman and PRAMS were reviewed and incorporated and the discussion revised accordingly.**

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)


**The variables adjusted for were included in Table 4.**