Author’s response to reviews

Title: Status and Associated Factors of Birth Registration in Selected Districts of Tigray Region, Ethiopia

Authors:

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Author’s response to reviews:

Reviewer’s comments and/or questions and their respective responses

A. Comments raised by editor:

1. Please state in your 'Ethics approval and consent to participate' section why you obtained oral and not written consent from study participants and whether this was approved by the ethics committee.
Answer: Oral consent was obtained from the study participants because some of the participants were illiterate and semi-literate and the research is considered of minimal risk to the participants. This was also approved by the ethics committee (stated in the manuscript).

2. Please provide figure titles/legends under a separate heading of 'Figure Legends' after the References. Figure files should contain only the image/graphic, as well as any associated keys/annotations. If titles/legends are present within the figure files, please remove them.
Answer: As per the comment given by the first reviewer and we believe that the information is readily understood from statement, we removed the chart from the manuscript.

B. Comments raised by Reviewer 1 and respective answers

1. Line 70: Rephrase "A self-reported survey report disclosed by UNICEF shows that the percentage of birth registration..." to "A survey report disclosed by UNICEF shows that the percentage of self-reported birth registration..."
Answer: Corrected in the text

2. Figure 1: Do the 2 items ad to 100% and are two responses from the same question? If so, there is no need to show a chart for this data because the information is readily understood from "70% of births are registered". Also, "children who did not register" implies it is the child who registers the birth, not the family.
Answer: To know the percentage of registered children with birth certificates, we asked mothers (custodians) “Does the birth of your last child get registered and has birth certificate? The possible answers were Yes/No type and they add to 100% and they were two responses from the same question. Since the information is clear and understood we removed the chart from the text. Further, those mothers who replied to the question by saying “Yes” were further asked to show
us the certificate and those who did not register the birth of their children were asked to tell us the reasons behind; which are incorporated in the text.

C. Comments raised by Reviewer 2:

1. Sample size calculations presented by authors are good for prevalence assessment, but the calculated number might be insufficient for logistic regression analysis with level of beta-error of 20%. Thus, I suggest presenting a power of the study taking an existing number of participants.

Answer: To determine the sample size single population proportion formula was used assuming that the proportion of mothers who registered the birth of their children and got certificate at 50% as there was no previously done research in the region. Accordingly, the sample size is determined based on the Standard score corresponding to 95% confidence interval, assumed proportion of mothers who registered the birth of their children and get birth certificate (50%) and margin of error (precision) 5%. Since the event or issue is not a rare event, we believed that the sample size used in the model is sufficient.

2. Results of logistic regression analysis: it is recommended to use logistic regression analysis for rare outcomes (less than 15%), because in this case OR will be true approximation of relative risk. Prevalence of outcome in authors' logistic regression model is relatively high (30%), in that can overestimate OR. I suggest adding information on possible overestimation as one of limitation of the study. You discussed possibility of selection bias in lines 505-510, but another frequent problem in such research which should be address is possibility of information bias.

Answer: In this study the prevalence of the outcome found is relatively high (30%), which could be derived from information bias. Consequently, there might be an overestimation of the relative risk in the model (stated in the limitation part of the study).

3. Conclusions: are overly broad and not fully based on study results. I suggest make it more precise and shorter.

Answer: An attempt is made to shorten the conclusion part of the manuscript.

Small remarks:

1. Abstract: add qualitative part in results section

Answer: Some qualitative results are incorporated in the result section of the abstract.

2. Table 4: it might be better to present reference category as the first for every variable:

Answer: It is clear that there is no any restriction for choosing reference category. We can select either first or last as a reference category. The results are the same no matter what we choose as a reference category. What is important is that keeping in mind while interpreting results. So, we are convinced that reference categories could be first or last.