Author's response to reviews

Title: Factors influencing place of delivery for women in Kenya: an analysis of the Kenya Demographic and Health Survey, 2008/2009

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Author's response to reviews: see over
Cover Letter

We wish to thank all the reviewers who have engaged us on this manuscript and the great contribution they have made towards improving this article. We have revisited the manuscript again based on the feedback by reviewers on our second version of the manuscript and we detail below how we have addressed the feedback given and have also provided the arguments to support some of the judgement we have made in developing this manuscript.

Reviewer 1.

Reviewers report: Language corrections.

We have reviewed the language and grammar used in the article.

Reviewers concerns

Major Compulsory Revisions

1. It would be appropriate that you highlight in a different colour the changes you have made in the main manuscript to make reference easy.

   Thank you for this concern and while we are aware this would facilitate easy identification of changes made, we have to submit the manuscript in the Biomed Central style, and highlighting and colour coding changes in it may not meet these standards. We point out as precisely as we can using page numbers, section, paragraph and line number to make it easier for you to identify any changes we have made.

2. The background section is still poorly organized and needs some re-organization to make this paper acceptable for publication.

   We thank the reviewer for taking a keen interest in the background as it provides a framework for our paper’s audience. The approach we have taken with the introduction is to highlight briefly the global picture, narrow down to the period around childbirth and then to the consensus that skilled assistance at child birth can save lives of mothers and their babies. We highlight the determinants of place of delivery in developing countries from the literature. We bring this together by looking at where women deliver in Kenya to end the background section and start on what this paper aims to contribute.

3. The perfect sample for this study is 3878; this is what should appear in the methods section under data used for the paper. This section on data should describe how this number was arrived at from the total sample of 8444 women interviewed in the 2008-09 Kenya DHS. The results section should ONLY describe the 3878 women which is the focus of analysis. A results section should be a description of the subset of women whose findings the authors wish to share and not all women interviewed in the Kenya 2008-09 survey since this information is already available in the publicly available DHS report for Kenya.

   Given that we use secondary data and analyse all the sampled women who had a most recent delivery, we did not calculate the perfect sample for this study. The 3878 figure reflects the women who had had a recent delivery and who had complete data to be included when we ran our final multivariate model. 89 (2%) women with a most recent delivery did not have complete data and hence are excluded automatically by Stata when the final model is run.
We describe the total sample of women interviewed, and all pregnancies that took place in the time period of the survey, and the total number of recent deliveries per women for completeness sake. But our multivariate modelling focuses on these 3878 women. We judge that this descriptive information is important to the reader who needs to understand our findings within this broader picture.

4. The DHS has different types of questionnaires, for instance, the Women’s questionnaire, Household questionnaire etc. The authors have not clearly mentioned the type of questionnaire used to come up with the study questions

Thank you for seeking that we clarify the questionnaires used for the survey as we believe that it is important that the reader understands well the methodology used for data collection of this data. Given that this has been elaborately dealt with in a Kenya Demographic and Health Survey 2008-2009 (KSHS) report, we highlight the approach taken to data collection during the survey and provided a reference that the reader can follow to access in adequate detail than we can provide in this paper the data collection methods including copies of the women’s questionnaire, men’s questionnaire, and household questionnaire used.

5. Usually the choice of a reference category is based on the ability of the authors to explain the association they are trying to investigate. While the authors chose ‘Luhya women’ as the reference category in the analysis they do not have an explanation for the association they were trying to investigate. Based on findings from numerous studies conducted in Kenya ‘Kikuyu women’ have always been used as the reference category given that they report the best health related indicators hence the ability of researchers to compare women from other ethnic groups to them. Can the authors explain why they did not use this category?

The rationale for using the Luhya women as the reference category is that it had the largest number of observations as a category. From a statistical point of view, this gives reliable and stable estimates. Given that with ethnic groups there is no standard group of reference and any group can ideally be used as a reference point, we judged that using a category that would give us more stable odds ratios (that is a reference category with the most observations) was the most appropriate approach. The reference group chosen would not alter interpretations of results as each ethnic group’s odds ratio would be relative to any reference group chosen.

6. I suggest that the authors conduct a cross-tabulation between ethnicity variable and region of residence to determine the location of the Somali and Kalenjin women before arriving at the conclusion that other tribes also live in these provinces. While their argument could be true, data from Kenya still shows that the Somali and Kalenjin women are predominantly found in North Eastern and Rift Valley provinces respectively.

We have cross-tabulated this and there are predominantly more Somali women living in Eastern province and Kalenjin women living in Rift valley provinces. We have also re-ran our multivariate models excluding each of them (ethnic and regions) in the model. There are small changes in the results and the interpretation remains basically the same. We include both in the final model as they both remain statistically significant in the final model.
Given the reference groups we use for the same reasons as explained in 5 above (Luhya for the tribes and Nyanza for region of residence), the interpretation of the odds ratio for either tribe or regions is relative to the reference group used. We have revised our results (multivariate result section; Paragraph 1 line 2 (ethnic) and paragraph 4 line 3 (region)) to reflect the comparative nature of this results.

Minor Essential Revisions

7. Additional comment: Why did the authors decide to look at place of delivery and not type of assistance (skilled assistance) at delivery? Was there any specific reason? While the two are important, data from the 2008-09 Kenya DHS shows that while 43% of the women were reported to have delivered at a health facility, a number slightly higher by one point (44%) were delivered with skilled assistance. This means there is some skilled delivery assistance occurring elsewhere and by only considering place of delivery, this group could be missed out. It would be interesting to know where such deliveries, classified as assisted by skilled professionals, are occurring.

Thank you for pointing this out and we agree that skilled delivery and place of delivery are both important and we could have used either of them for this study. We chose place of delivery as one of the authors judged that many complications that arise around time of delivery in Kenya are better managed in a health facility. With good referral systems backing up skilled workers providing assistance to women elsewhere including at home, complication that arises can still be managed well and in time. But for the purpose of this study, we use health facility delivery.

Reviewer 2.

No further revisions required by reviewer 2.