Author's response to reviews

Title: Factors associated with health facility childbirth in districts of Kenya, Tanzania and Zambia: a population based survey

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Author's response to reviews: see over
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7th February 2014.

BMC Pregnancy and Childbirth,
BioMed Central,
236 Gray’s Inn Road,
London WC1X 8HB,
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Dear Sir/Madam,

RE: Submission of revised manuscript

I am a PhD candidate at the University of Bergen, Centre for International Health, Department of Global Health and Primary Care. I am submitting, and on behalf of my co-authors, the attached revised manuscript after responding to reviewers’ report. We find it relevant as it compares similarities and differences in three districts in sub-Saharan Africa in terms of factors associated with facility childbirth.

The manuscript is: Factors associated with health facility childbirths in districts of Kenya, Tanzania and Zambia – a population-based survey. The study reveals strong socio-economic inequities associated with facility childbirth common in the three districts. Differences exist in facility childbirth associated with perceived distance, and trust in quality of care due to differences in health system delivery of care. The study also shows a positive association of HIV testing and counseling in favor of giving birth at a health facility, suggesting positive effects of strengthening integrated approaches in maternal health service delivery. These findings are important to help inform policy makers about the extent of inequities that need to be addressed in order to help improve maternal and neonatal outcomes at childbirth as we aim to find ways of achieving millennium development goals 4 and 5.

The point by point response to the reviewers’ report is attached below. We will greatly appreciate your consideration of the manuscript in your journal.

Yours sincerely,

Selia Ng’ anjo Phiri.
Response to reviewers’ reports

**Title:** Factors associated with health facility childbirth in districts of Kenya, Tanzania and Zambia: a population based survey

**Reviewer:** Jean Christophe Fotso

**Major Compulsory Revisions:** None

**Essential Revisions**

Variables: It is rather unusual to merge the wealth and the education variables into one single SEP variable. There is evidence that wealth (which captures the material aspect of well-being) and education (which is more about knowledge and social capital) influence health and health seeking behaviors differently. The authors should keep both variables separate.

- **Response:** The thinking behind the construction of SEP is based on the following theoretical considerations: Socioeconomic position is seen as a multidimensional and multilevel construct which is partly determined by structural relations. The different dimensions are overlapping (correlated). We used educational attainment and WI as indicators of SEP, and the main intention was to capture the association between facility childbirth and SEP as part of the assessment of equity. Since the two indicators were highly correlated (r=0.2), adding them separately in the multivariate analysis would not be proper since each were to be adjusted for the other. This permitted improvement of the overall explanatory power of the model.
- **Actually,** when we added both of them in the model only educational attainment remained as the significant factor.

**Table 1:** The authors may consider deleting the columns on n (absolute numbers), and include a row at the end of the Table with the “n”s.

- **Table 1** has been modified by deleting the columns on “n” and included a row at the end of the table with the “n”

**Table 2:** The Table is overcrowded with many redundant figures. The columns on “Frequency n” should be removed. Even the Bivariate OR columns could be removed, given that bivariate results are also presented in Tables 3-5. The Table could then focus on the frequency of facility deliveries (the proportion), provided the authors add the statistical significance.

- **Response:** We think that frequencies should be given (also supported by the second reviewer). However, we support the need for modifying it by leaving the frequencies and proportions of facility childbirths in the three districts. The statistical significance testing is then done in Tables 3, 4 and 5.

**Tables 3-5:** What is rationale for having all covariates as continuous variables? It would have been good to keep the variable specifications as in Table 2, for ease of interpretation. What do the numbers in brackets in the variable names (e.g. SEP (1-16)) mean?
- The rationale for including the independent variables as they were actually created (continuous) is to maximize the information in them (any recoding to categorical variables will mean to reduce the information) and this gives better fit. We don’t see any problem with interpretation.

- The numbers in brackets of variable names indicate the levels from lowest to highest for the covariates that were entered in the model as continuous variables. A statement below each of Tables 3, 4 and 5 has been added to explain this.

Discretionary Revisions: None

Reviewer: Terhi Lohela

Reviewer's report:

MAJOR ESSENTIAL REVISIONS
1. Abstract p.2: Based on the data, it cannot be stated that perceived distance is a barrier to facility childbirth in rural areas as it was negatively associated with facility birth only in Malindi (significant).

- We agree. Perceived distance was negatively associated with facility childbirth only in rural Malindi and urban Kapiri Mposhi.
- Necessary changes have been made i.e ‘Perceived distance was a barrier to facility childbirth in rural areas of Malindi and urban areas of Kapiri Mposhi, whereas association with perceived cost was negative only in urban Malindi’.

Results
In general, the Results section needs some rewriting.
2. Place for Childbirth (p.7): The authors report that “Significant differences in health facility childbirth across the districts, p<0.001, between rural and urban areas of Malindi and Kapiri Mposhi, p<0.001, and in place for childbirth in all the three districts, p<0.001, were observed.” The authors should state the magnitude and direction of the effect together with the p-values.

- A second paragraph in the ‘place of childbirth’ chapter was added. ‘Significant differences in health facility childbirths were also observed across districts, p<0.001. The prevalence ratio of facility childbirth in Mbarali compared to Malindi was 4.6 in rural areas and 1.3 in urban areas. Comparing Kapiri Mposhi to Malindi the prevalence ratio of facility childbirth was 2.4 in rural areas and 1.4 in urban areas (Table 1).’

3. p.7: Based on the data presented in the tables, it can hardly be stated that married women tended to deliver in a facility more often or that facility childbirth was negatively associated with perceived cost.

- The statements have been rewritten:
- ‘Married women in urban areas of Kapiri Mposhi tended to be more likely to have facility childbirth compared to single women, and this association remained significant after adjusting for SEP and proximate factors (Table 2 and 5).’ – (under association with socio-demographic factors).
- ‘Local variation was also observed with association of perceived cost and facility childbirth. The negative association observed in urban Malindi was insignificant after adjusting for underlying and proximate factors. In contrast, a positive association was observed in urban Mbarali and Kapiri Mposhi.’ – (under association with SEP and proximate factors).

4. The authors should indicate what was/were the statistical test(s) used for testing in tables 2-5.
   - This was done, and footnotes below the tables were added.

5. Table 2: Show total values for each underlying factor and for rural and urban separately. Indicate why the totals vary between the different underlying factors (e.g. due to missing values on certain variables).
   - Total numbers in urban Kapiri Mposhi for age variable do not add up to 231 due to one missing value (indicated as a footnote below the table).

6. The total of rural births seems to be 417 for rural Malindi in Table 1 and 418 for rural Malindi in Table 2.
   - This has been corrected – 418 for rural Malindi in Table 1 and 2.

7. The total of rural births in Kapiri Mposhi is 298 in Table 1 and 299 in Table 2.
   - This has been corrected – 299 for rural Kapiri Mposhi in Table 1 and 2.

Make changes to correct these discrepancies.

DISCRETIONARY REVISIONS
1. In the Population characteristics chapter, it should be made clear whether the authors refer to the responders or to the non-responders when stating “Their age ranged from 15 to 49...” Assuming the authors refer to the responders, the sentence concerning the non-responders (“Non-response did not differ...”) could be replaced to the end of the chapter.
   - This sentence has been replaced to the end of the chapter since the age range referred to respondents.

MINOR ESSENTIAL REVISIONS
1. In the Study Design chapter (p.5), quote proportions of urban populations with the similar precisions for each population (e.g. with precision of one decimal place).
   - This has been corrected.

2. The authors state that ANC and HIV testing increased health facility deliveries (p.7). This sentence should be rephrased as it implies causality and only
associations have been studied in this study.

- The sentence has been deleted and we kept the sentence under the chapter on association with SEP and proximate factors: ‘ANC visits tended to be positively associated with facility childbirth regardless of place, i.e statistically significant or borderline significance. Women who reported ever HIV tested were also more likely to have facility delivery compared to those never tested, and the association remained in both rural and urban Mbarali and in rural Kapiri Mposhi in the final model’.

References
3. The authors should be consistent in the way reports are cited. References to a report should include the following elements: authors, year of publication, name of the report, place (city) of publication. If the report was accessed online, include the URL as well. These elements should be similar and in the same order for each reference. Revise reference numbers 1-4, 7, 8, 15, 25, 27-29, 32-37, 53, 59

- The references have been revised.