Author’s response to reviews

Title: Maternal overweight and obesity and the risk of caesarean birth in Malawi. Analysis of population-based surveys

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Reviewer 1’s Comments

Comment 1: English summary Page 4 Line 16 the end of the sentence is missing.
Response: On page 4 (lines 13-16), we revised the original sentences in the background section to be “Previous studies have shown that overweight and obese women had increased risk of maternal and fetal complications such as gestational diabetes, hypertension, fetal distress, preeclampsia, postpartum haemorrhage, genital tract infection, intrauterine death and macrosomia which are known to increase the risk for caesarean birth”.

Comment 2: Background page 4 line 5: Up to 50% of the populations are classified as overweight or obese” : I would add something like : in certain areas, up to 50%...
Response: On page 4, lines 4-5, we rephrased and reads as “In certain African countries, up to 50%.................”.

Comment 3: Page 5 Line 17-18: How accurate was the information on maternal age and children's age? In some areas women can't recall their exact age. Page 6 line 9: How accurate was the number of antenatal visits since the survey took place several years after delivery.

Response: Many thanks for this insightful comment. Both maternal and children’s age and number of ANC visits were measured based on recall and thus there could have been a potential of recall bias which is highlighted in the limitation on page....lines....

Although recall bias may be better for less frequent and more important events such as birth date, and ANC attendance [1], recall bias may have occurred in this study. The MDHS did not verify the participant’s information for age, and number of ANC visits using identification cards or ANC cards which may have reduced recall bias. Future studies need to consider verification of such information for reliability.

Comment 4: Page 8 line 6: was the trend in increasing prevalence of obesity and cesarean section statistically significant over the three time periods? You don't mention the tests you have used either.

Response: To address this comment, we conducted a Cochran-Armitage Trend Test analysis and the results in table 2 showed a statistically significant increase in the trend for maternal overweight and obesity on cesarean birth across the cohort years.

Comment 5: Page 8 line 16-18: "Furthermore, in all cohort years, overweight and obese mothers who had secondary education and above, from richest households, with one child, adequate ANC, resided in urban and central regions had increased risk of caesarean birth." I don't understand where you can find these stratified analyses (obese mothers with secondary education from richest household versus: obese mothers and mothers with secondary education and mothers from richest household) Page 8 Line 20: where is the statistical analysis and result for this?

Response: The intended statement was not in line with study objective and has been rephrased in the revised manuscript (page 8, lines 21-23) and read as “Furthermore, in all cohort years, women who had secondary education and above, from richest households, with one child, adequate ANC, resided in urban and central regions had increased risk of caesarean birth”.

Comment 6: Page 9 Line 1-16: no need to repeat all that is already in the table, you could just report the main findings. Moreover, For overweight mothers - 2015 in the tables it is written 1.36, and 1.35 in the text, and for 2004-2015, it is written 1.35 in the table and 1.36 in the text.
For women with 1 child, it is written 3.11 in the text without reference to any period of time, same for Northern region, 1.40 without reference to any period of time.

Response: Many thanks for this insightful comment. We now limited the statistically significant results in the text to the main independent variables of this study as overweight and obese women and their risk of cesarean birth. In addition, the discrepancies of the odds ratios in the text and table 4 have been corrected accordingly on the results section on page 9, lines 5-11.

Comment 7: Table 2 and page 9 line 23: you write that there « was a clear dose-response relationship” but while the numbers are increasing, it is not « clear » from your table that the relationship and the trend were statistically significant (statistical threshold does not seem to be reached?)

Response: Similar to our response to comment 4, we conducted a Cochran-Armitage Trend Test analysis and the result showed a statistically significant (p < 0.001) increasing trend of maternal overweight and obesity on cesarean births from 2004 to 2015/16. For more clarity we combined tables 2 and 3 to form table 2 which contains trend prevalence of overweight and obesity on caesarean birth.

Comment 8: Page 10 line 7: you don't mention pregnancy complications such as diabetes and hypertension that might be related with obesity and are known risk factors for cesarean section.

Response: On page 10 (lines 9-12), we revised the original sentence in the discussion section and it reads as “………it has been suggested that pregnancy complications such gestational diabetes, hypertension, increase in maternal pelvic soft tissue, fetal macrosomia, prolonged time of delivery and intrapartum complications might be related with obesity which are known risk factors for caesarian birth [15, 29].”

Comment 9: Page 12 line 2 do you have an explanation for Northern women being more likely to have a cesarean section?

Response: The possible explanation is that the distribution of facilities offering caesarian births are 7%, 8%, and 7% for Northern, Central and Southern regions, respectively [2]. However, the Northern region’s population is lower than that of the other regions suggesting that accessibility to CS services is better for women in the northern region than the other regions.

Comment 10: Just a few corrections are needed (page 6 line 6 « utilised data from three the waves of nationally », page 6 line 15 « measure the measurements » )

Response: We have corrected these sentences in the revised manuscript.
Reviewer 2’s Comments

Comment: It is not clear when the BMI was taken? It is seems to be it was taken during the survey itself. Therefore, it is taken at the different time perhaps many months after cesarean was performed. This point needs to be clarified and perhaps it is one of the limitations of the study. I believe that many women have more than cesarean delivery during the survey. Were these considered two cases or as one case?

Response: Many thanks for this insightful comment. This study was limited to the most recent births within the last five years before the surveys. However, authors agree that the major limitation of the study is that maternal BMI was measured during the surveys which might have been different from maternal BMI measured before birth. Previous studies suggested that women tend to have high BMI during pregnancy [3] and decrease after birth. Therefore, the strength of association in our results may possibly be biased towards the null. Furthermore, since the study was limited to the most recent births within the last five years, this study considers one case of caesarian birth. This can be found on page 11, lines 11-14 of the revised manuscript.

Reference

