Author’s response to reviews

Title: Factors associated with health care provider knowledge on abortion care in Ethiopia, a further analysis on emergency obstetric and newborn care assessment 2016 data

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Responses for Technical Comments

1. Please note that the author names in your manuscript file differ from those entered in the submission system - please correct so they are consistent with each other

As per the comment, author names in manuscript file and submission system be made consistent each other.
2. In order to be in line with journal requirements please change your “Conclusion and recommendation” heading to instead read “Conclusion.”

“Conclusion and recommendation” heading was changed to “Conclusion” heading. See it on page 2 line 56 and on page 11, line number 252.

Response for reviewer 1 (Sarah Rominski):

1. The introduction which is too long, repetitive, and lacking in organization and flow:

Thank you for your thorough review. As per your valuable comments, the introduction section was changed to six paragraphs and the flow was corrected. You can see from page 3 to page 4 and line 62 to 94.

2. The discussion section which is too long, repetitive, and lacking in organization and flow:

Thank you for your comments. The discussion section was revised as per your comments. See the changes from page 9 to 10 and line number 212 to 251.

3. An acronym before using it (MVA is presented without saying it's short for manual vacuum aspiration)

The acronym MVA was stated as “manual vacuum aspiration” before using the short form. See it on page 3, paragraph 2 and line number 74.

4. How were the differences between cadres determined? It is never stated which statistical test was used to determine bivariate differences.

The statistical test used to compare the difference of among cadres was one way ANOVA, since the averages for more than two cadres. See it on data analysis heading, page 5, paragraph 2 and line number 125 to 126.

5. Why aren't the odds ratios for midwives and nurses presented?

The odd ratios for midwives and nurses were calculated and displayed on Table 3. You can see on page 18, Table 3 and line 411.
6. There are many references missing (for example, on page 1: "In Ethiopia, although maternal mortality has declined during the past decades, women still die unnecessarily from abortion complications." This needs a reference, and a number,

This statement was rewritten, referenced and numbered. The reference number 7 stands for the indicated statement. You can see it on page 3, paragraph 3 and line number 72 to 76.

7. "Comprehensive abortion care is critically important in countries like Ethiopia where the estimated number of pregnancies that end in abortion is about half a million annually." needs a reference. This statement needs reference

This statement was also referenced and numbered. The reference number 9 stands for the indicated statement. You can see it on page 3, paragraph 3 and line number 79 to 80.

8. "Historically, abortion-related studies conducted in Ethiopia have focused mainly on met need for family planning, reasons for abortion, the estimation of how many are performed, the distribution of abortion services and patient satisfaction. While several studies have examined comprehensive abortion care, they tend to be small studies. These are only a few examples. The authors need to ensure all statements are referenced.

Thank you for your comments for the missed references. We have updated the references. See page 4, line number 88 to 90.

9. This sentence is confusing: "Abortion is generally not a complex procedure, and obstetricians or surgeons are not required to provide safe and effective comprehensive abortion care." While I think it means that it is not necessary to have an ObGyn or surgeon perform an abortion to make sure it is safe, as currently written, it is confusing (when I first read it, I thought the authors were saying that ObGyns and surgeons did not need to provide safe abortions)

Thank you for raising such confusion issue included in the manuscript. This sentence was removed since it has no any relevance to our study. See the change made on introduction section

10. Who determined that the survey was an appropriate way to measure knowledge?
I don’t understand your question correctly. We didn’t mentioned that this study was an appropriate way to measure knowledge. This study only assessed on three abortion complications and unsafe abortion knowledge questions. Hence, it has limitation.

11. It is stated in the methods that D&;C was a correct answer, but in the discussion, it is stated that WHO says either MVA or medication abortion are the appropriate and safe ways to perform an abortion. If D&;C is not WHO approved, why was it considered a correct answer?

It is not stated in the methods that D & C was a correct answer.

12. Who decided the number of correct answers to each question?

The tools (modules) were originally prepared by Averting Maternal Death and Disability (AMDD). These questions have been used on probably close to 30-40 countries and that means a lot of global expertise and potentially a lot of changes. Hence, it is impossible to cite reference.

13. There is repetition in the results section; the questions are repeated from the methods section

Thank you for your valuable comment on the repetition of the same content on the result and methods sections. The repeated questions were removed from result section.

14. How was a 50% score determined to be "high" knowledge? I see that there is a reference to an OSCE, but it is not stated why the cut-off was set at 50%.

We have tried to search references for the cut-off point. We have got that “test score higher than 50% was consider acceptable” , medical Council of India recommends 50% and National Board of Examination, India accept overall 50% marks as minimum acceptable for passing in OSCE examinations and we defined that a score 50% and above as pass score just to dichotomy the outcome variable into two. See the references (references 21 and 22) we cited on Data analysis heading, page 5, paragraph 2 and line number 128 to 131.

15. It is not clear what the % in the results section are saying. Is it that 51% of the providers were able to state all 5 complications, for example, or that, on average, providers could name 51% of the complication? This holds for all of the presentation of results.
Thank you for raising important clarity issues on the result narration. We wanted to state that “providers could name 51% of the complications; not that 51% of the providers were able to state all 5 complications. We have addresses them according to your comments. See the changes on Health Provider knowledge scores on abortion heading, page 7, paragraph 1, line number 158 to 161, paragraph 2 line 171 to 172 and paragraph 3, line 175 to 176. The changes were highlighted.

16. The whole discussion about all levels of providers being able to safely provide abortion services seems to be undercut by the findings of the lack of knowledge among non-physicians. While this is eventually acknowledged, it is not explained, nor was I convinced that these findings support "lower" cadres being able to provide abortion services. Is knowledge associated with poorer outcomes? If so, these findings are troubling.

Professional qualification was a predictor of knowledge in the logistic regression model. It showed that midwives and nurses with lower knowledge scores compared to health officers. The selection criteria for this study was one provider from each health facility who provided the largest number of deliveries in the past month or past two months and physically present during the assessment. Clearly our study didn’t show knowledge associated with poorer outcomes, if I’m correctly understand your concerns.