Reviewer’s report

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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Reviewer: Sarah Rominski

Reviewer's report:

This is a paper using an interesting data set, about an important topic. I hope the authors will take the time to make the necessary changes so this paper can be published.

My first overall comment is that the paper needs a close copy edit. There are many instances of commas being used incorrectly (either used where they don't belong, or missing where they do), of semicolons being used incorrectly or missing. There are sentences that are not complete, or that are unintelligible. There are too many instances for me to list them all, but as an example, it is written, "Nevertheless, abortion is not a complex procedure, obstetricians or surgeons must not be available to perform comprehensive abortion care." This sentence begins a paragraph, so the "nevertheless" is unnecessary. Further, the comma is not required there. I think this sentence should instead be written something like, "Abortion is not a complex procedure, and obstetricians or surgeons are not required to perform comprehensive abortion care."

My next main comment is that the methods section needs substantially more information. The questions that are listed in the results ("Health care providers were asked a series of questions related to unsafe abortion: "What are the immediate complications of unsafe abortion?" "What do you do for a woman with an unsafe or incomplete abortion?" "What information do you give to clients after unsafe or incomplete abortion?"") should be in the methods section, and they should all be listed. Further, the questions about type of facility, location of facility, etc. ("Provider's profession, sex, performed MVA, trained to perform MVA, type of facility, location of facility, availability of computer, internet, safe abortion care and family planning guidelines") should be listed and explained.

Then, it needs to be clear how these were analyzed.

Also missing is any discussion about whether this is a valid way to elicit information from providers. Asking them to provide answers seems similar to an OSCE to me, but this was never justified.

Finally, in the methods section, why was the 50% make determined the cut-off?
My final main comment is that the whole paper, but especially the introduction and the discussion, needs to be better organized. In the introduction, it is written, "The major causes of maternal death are primarily pregnancy related and preventable, six percent of all maternal deaths were attributable to complications from abortion (6). Unsafe abortion, is one of the preventable causes of death(7). Accounting for 32 percent of the deaths, unsafe abortion was one of the most common causes of maternal mortality in Ethiopia (8). However, according to emergency obstetric and newborn care assessment (EmONC) in 2016, out of 564 maternal deaths due to direct causes, nearly 1 percent of all maternal deaths were attributable to complications from abortion (9)". So, do complications from abortion cause 1, 6, or 32% of maternal deaths? It seems to say all three.

In the discussion section, there is no need to reiterate the numbers presented in the results section. It felt as though I was re-reading the results section.

I am unclear on how the results are presented in Table 3. Are the adjusted ORs one model? And is the outcome knowledge or lack of knowledge? Because it is written, "the result showed that the observed overall low knowledge score (&lt;50%) related to safe abortion care were 1.96 and 2.99 times more likely among midwife and nurse professionals compared with health officers…Male providers were also higher in terms of their knowledge when compared with their female counterparts.", but the title of the table is, "Factors associated with health care providers' knowledge on abortion care". So, is the outcome low knowledge, and therefore the 1.96 and 2.99 OR are that midwives are almost twice as likely, and nurses 3 times as likely as their MD colleagues to have low knowledge score, and males are less likely (OR .78) to have a low knowledge score? I am not sure these are meaningful comparisons, given there were only 4 clinical officers, out of 3,000 people surveyed. Why would the clinical officers be the reference group, with less than .1% of the sample?

In the results section, I suggest cutting out a lot of the language. The information presented in paragraph form is also presented in the tables. It is hard to read and digest all of those numbers in paragraph form. Instead, just highlight the 2 or 3 findings that are most striking, and then point the readers to the tables.

Were participants asked about their willingness to provide abortions, or their experience providing abortions? In the discussion section, it is written, "This analysis revealed, most respondents providing comprehensive abortion care were midwives, which accounted 84%, followed by nurses12%." Where were they asked if they provide abortions? And if they were, why was this not included in the assessment of their knowledge?

It seems like this is an analysis of knowledge, but attitudes and practice (the KAP assessment) are also important components, and the A and P are missing from this assessment.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
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