Reviewer’s report

Title: Illness recognition and care seeking for maternal complications of pregnancy and birth in rural Amhara and Oromia Regional States of Ethiopia

Version: 0 Date: 24 Mar 2017

Reviewer: Margareta Persson

Reviewer's report:

Thank you for the opportunity to review this interesting manuscript that explores illness recognition and appropriate care seeking for complications of pregnancy and childbirth within two regions in Ethiopia. The study was based on a three delays model, a framework explaining possible factors that may act as barriers for accessing adequate and timely care related to pregnancy, childbirth and postpartum period. However, this paper needs a major revision before publication.

Background:

There is information lacking which would have made the paper easier to follow and understand. For example, what are the main causes of maternal mortality in Ethiopia? Do women predominantly have their birth attended by skilled staff or are most women in the studied regions cared for by traditional birth attendants? The background mainly focus on the MaNHEP project with major focus on who funded and participated in the project and little presentation of the outcomes of the project - it would have been more interesting to focus on the results of the project. Also, the rationale for this paper is hard to understand and would benefit from some clarification - do you want to find out whether the improvements found at the end of the project still persist some years later? Or whether the illness recognition had resulted in timely and appropriate care seeking? The concept of Illness recognition/Maternal Early Warning Criteria is not presented - what is known about accurate maternal illness recognition?

Method:

Study site: the description of the study site would benefit from more details. Are these rural areas? How many live there? Is health care mainly provided by health posts or health centres? Do you know to what extent women in these regions are attended by skilled staff at child birth or do women predominantly give birth at home attended by traditional birth attendants? Are these areas poorer than other regions in Ethiopia? Please, provide more information so it is easier to understand the context where this study is performed.
Sampling and recruitment: unfortunately, I find it difficult to understand the inclusion criteria. Are there no younger mothers than 18 yrs in the region? Why limiting the inclusion to women who suffered from haemorrhage and survived? Excessive bleeding is only one of the major fatal complications to childbirth, while the cases with fatal outcome could be of any cause? Why not an inclusion of near-miss cases instead?

When interviewing family members of the dead women, who were interviewed? The head of the family? Husband? Other females? More than one person?

Data collection: This paragraph will benefit from comprehensive clarification of the data collection. Where were the interviews performed? In people's homes or elsewhere? Who were present apart from the interviewers? Were the participants free to reveal details or were they overheard by other family members? In what language were the interviews performed? Are the interviews translated to English for the analysis? Who translated? Are there any validation of the translations by back-translations? How is it possible for the senior researcher to provide feedback on reports and field notes without participating in the data collection?

Data quality: Who had trained the interviewers? Cross-checking consistency of responses - does that mean that facts presented in the interviews were checked with other witnesses? In such cases, how is the additional information handled?

Analysis: the analysis is based on the Three delay Model - however, the model is not obvious in the results (please, see more information in the Result section). What type of analysis is performed - to me, it seem to be some kind of quantitative thematic analysis, is that correctly understood? How are qual and quant methods combined for the mixed-method design?

I cannot follow who did what in the analysis. First, there are two interviewers who have "prepared" the data set. Then there are two research assistants, but only one research assistant is trained to code - what did the other research assistant do? Who is the senior researcher - an author of the paper? The three steps of the analysis - who performed these? Are the research assistant and senior researcher familiar with the societal context of the region under study? As a reader, how can I validate the coding and findings? Could examples be provided?

Findings

Sample characteristics: Inclusion criteria were women aged 18 -49 years old. You present the proportion of women 19 - 29 yrs and 30 - 39 yrs, but what about the remaining 14%, are they below 19 or 40 +? The majority had no schooling, but does that mean that they are illiterate? In some African countries, children may attend schools arranged by churches and mosques so they
know how to read and write, but may not have formal education - is this the case in this region in Ethiopia?

Subtitles Delay 1 and 2 - does that mean Phase-one delay i.e. delay in seeking appropriate care and Phase-two delay: delay in reaching the health facility? Why is there no phase-three delay; delay in receiving appropriate care at the health facility? All women who died were in a health facility when they died.

Subtitle "Percieved causes", but, of what? Delay or of developing a complication or illness recognition? This needs to be clarified.

Figure 1 - 2: is the y-axis indicating %? I lack an explanation to the figure that the participants presented more than one symptoms/illness causes, thus the total exceeds 100%. The texts corresponding to the figures are just repeating the content of the figure. It would be more interesting to stress what the reader should take special notice of.

The paragraph starting with "As mentioned above, of the mothers that died...." This paragraph should have its own subtitle "Percieved causes of death by family members" which makes it easier for the reader to follow.

Box 1: Is this a paraphrase explaining how family members' perceive the causes of the woman's death? When reading the narrative, I find several aspects of Phase-three delays - i.e. delay in receiving appropriate care at the health facility. Should these aspects not be presented as Phase-three delay?

Figure 3 is very difficult to understand despite the explanation in the text. It is impossible to get an overview of the different care seeking options (I tried to color each step in order to make an overview, but it was still hard - too messy). Why not present the care seeking procedures as a table instead? Maybe something similar to the summary table presented by Combs Thorsen, Sundby and Malata (2012) Piecing together the Maternal Death Puzzle through narratives: The three delays model revised. PLoS ONE 7(12):e52090? Some women appear to have turned to traditional healers in their care seeking. This option is not presented in the care seeking pathways for maternal illness despite being described in the text.

Discussion:

What are the main findings of this study? What is the new knowledge derived from this study? How is these findings related to the findings of the previous MaNHEP project within the area?
Little knowledge and poor illness recognition is often related to low educational levels, but in your sample you have 27% of participants with more than 8 years of schooling—how may this be explained?

Methodological considerations? What are the strengths with this study? What about the sample? Why include severe bleeding/haemorrhage as the major complication of participants and any cause for the women who died? Heavy bleeding is a very obvious complication to childbirth, while other severe complications may have much more discrete symptoms. If you want to study illness recognition/maternal early warning symptoms, using haemorrhage as the major inclusion criteria may skew the experiences and consequently the findings. This aspect that may bias the findings should have been discussed. Further, one interviewer is male—how may this have influenced interviewing about a predominantly female area such as childbirth?

Conclusion:

In the conclusion, new information on what has happened in terms of development and improvement of maternal health services in Ethiopia is presented. This is preferably background information that enables the reader to understand the context better. The conclusion stating that the efforts are beginning to pay off is not supported by the findings. No information of previous care seeking behaviour is presented in the paper; thus it is hard to value if the efforts are paying off in terms of delivery in health facilities (65% of the participants in this study gave birth at home - is this proportion less than previously?) and appropriate care seeking behaviour (still almost half of the participants had not appropriate health care seeking - as there are no results presented of previous behaviours, it is hard to value if the behaviour has improved).

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?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No
Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review? If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

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