Reviewer's report

Title: Inequities in maternal health services utilization in Ethiopia 2000-2016: magnitudes, trends, and determinants

Version: 0 Date: 05 May 2018

Reviewer: Mezgebu Yitayal

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General Comments:

The manuscript is well written and easily understood by the readers. As authors described it, inequities in maternal health services utilization constitute a major challenge in maternal mortality reduction in Ethiopia. Therefore, the results of this study may be relevant for targeting maternal health interventions for the under-served women is essential to reduce maternal mortality in the country. However, the period in the manuscript title may lead to misunderstanding of the nature of the data used. From the title it seems that the source of the data was time series data. However, it is actually a two times surveys i.e., survey conducted in 2000 and 2016. It may be difficult to understand the trends of inequities in maternal health services utilization in Ethiopia by using only two time periods. If you had wanted to show the trends in inequities in maternal health services utilization in Ethiopia, it would have been good to use the other DHS also i.e. 2005 and 2011 Ethiopian DHS.

Abstract

Method section: This section did not explain what was the study design, and the method of data analysis.

Plain English summary

Line 16: This increased from 2000 to 2016.
Which one? This statement is a little bit confusing; you can merge with the previous statement to make it clearer.

Introduction
Paragraph 1, lines 27-30: Maternal mortality in Ethiopia is among the highest in the world, although the causes are preventable.

This sentence is not specific enough. How much is the maternal mortality ratio in Ethiopia? Where does Ethiopia stand compared with other countries? This is the place you are expected to indicate the magnitude of the problem maternal mortality in general, and inequalities in maternal health services in particular in the world, developing countries, and Ethiopia.

It would also be wise to describe the Sustainable Development Goals and targets in relation to maternal mortality ratio as it is a relatively recent initiative after Millenium Development Goals.

In this section, you are also expected to describe the rational/justification and significance of conducting this study. What was the motives that motivated the authors to conduct this study? Was it lack of evidence in this area? Was it methodological flaw of the previous studies? Or any other reasons?

Methods

Data
The study participants were interviewed after written consent was taken. This sentence may not be required. 1st, it may be part of ethical issues; and 2nd, it seems you yourself managed to get written consent from study participants.

Socioeconomic status:
Do you believe that variables such as refrigerator, television, motorcycle, and bicycle are relevant for PCA in rural settings in Ethiopia? How did you determine the variables to be included in the PCA?
Measures:
The 2000 and 2016 definitions for Skilled Birth Attendants (SBA) and Postnatal Care (PNC) are not similar. In this case, how did you manage the bias related to the definition itself? For example in SBA definition, health officers are included in the 2016; and for PNC, the definition was postnatal check-up within two days after delivery for the last birth in five years preceding the survey except for the 2016 surveys (within two years preceding the survey). From this we can understand that the variation might be due to the differences in definitions other than in terms of other characteristics.

Line 28-33: Throughout this paper yes ANC, SBA, and PNC services utilization represent when women attended the services according to the above-mentioned definitions but no indicates that women did not utilize the service. You can modify it as follows:

Throughout this paper, ANC, SBA, and PNC services utilization represent "Yes" if women attended the services according to the above-mentioned definitions and "No" if otherwise. Here, it would be nice if the authors described the definitions rather than referring back to the previous definitions.

Explanatory variables descriptions

The explanatory variables were women low wealth status, rural resident, education, occupation, mass media exposure, respondent current age and current marital status. You can modify it as follows:
The explanatory variables were women wealth status, resident, education, occupation, mass media exposure, respondent current age and current marital status.

Results
Check percentage of age categories: it should be 100%.

Discussion
Generally, the likelihood of ANC, PNC, and SBA services utilization increased significantly among better-off than poor women from 2000 to 2016.
This sentence is not convincing. You compared the ANC, PNC and SBA services utilization for the two periods 2000 and 2016. The word from 2000 to 2016 may not be appropriate.

**Level of interest**
Please indicate how interesting you found the manuscript:
An article whose findings are important to those with closely related research interests

**Quality of written English**
Please indicate the quality of language in the manuscript:
Acceptable

**Declaration of competing interests**
Please complete a declaration of competing interests, considering the following questions:

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