Author’s response to reviews

Title: Assessing medical impoverishment and associated factors in health care in Ethiopia

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BMC International Health and Human Rights

Cover Letter

Re: Assessing medical impoverishment and associated factors in health care in Ethiopia – revised manuscript

Dear Editor,

Thank you for allowing us to revise our manuscript entitled “Assessing medical impoverishment and associated factors in health care in Ethiopia.”

The reviewers have provided helpful comments that have improved the manuscript. We have addressed all the concerns of the reviewers. More specifically, we have added information on the Ethiopian health system in terms of providers, reforms, and out-of-pocket payments to clarify the health care delivery and financing situation and provide the justification for this study. We have also engaged more with the literature to enrich the discussion section thereby indicating the significance and policy implications of the study. We have also clarified the period of data collection and the implications for the current landscape.

Changes to the text in the manuscript are provided with track changes. We have also included a point by point response to each comment.

I ask you to consider our revised manuscript for publication in the BMC International Health and Human Rights.

Yours sincerely,
Amarech Obse, PhD
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Point by point response

Reviewer reports:

Jacob Mazalale (Reviewer 1): The is an interesting article touching on an interesting subject in public health. It assesses the impoverishing effects of OOP expenditures in Ethiopia. Below are my comments by paper sections.

Response: Thank you for reviewing the paper and providing us constructive comments.

Abstract:

1. Authors should know that grammatically, "on the other hand" must always preceded by "on the one hand". In addition to this, the manuscript should have the language (i.e. English) reviewed.

Response: Corrected. Please see page 2 line 5.

English is also edited throughout the manuscript.

2. In the conclusion (of the abstract, and therefore, by extension, the discussion and conclusion of the main text), it would be interesting for the authors briefly discuss the implications of the results on the most poor i.e. those who did not cross the poverty line because they were already below the line because the waiver systems and the community -based health insurance reforms mentioned would likely target these.

Response: A brief discussion on this is added to the abstract and further discussion is provided in the main text.

Please see page 2 lines 11-14 in the abstract; and

Page 12 lines 19-24 and page 13 lines 1-15 in the discussion section.

Background:
1. In the second paragraph of page 3, one beginning with "Ethiopia, like most..." line 12, it is important that the authors provide a brief description of the Ethiopian healthcare system. For example, is one generally expected to pay public healthcare providers? What is the proportion of private providers? If free of charge, how do they justify the study? There is need for that motivation. Two sentences would be enough to inform the reader. This would help to contextualise the study.

Response: A brief description of the Ethiopian health financing system and providers of health services is added now.

Please see page 3 lines 24-25 and page 4 lines 1-6.

2. Line 14 of page 3 (second paragraph) talks of "different health financing reforms". The authors should provide examples.

Response: Some of the financing reforms are listed and explained now.

Please see page 4 lines 8-19.

3. In line 14, the sentence beginning with "For example, OOP..." does not properly connect with the previous sentences. The English needed some improvements.

Response: This is edited. The English is edited throughout the manuscript.

Please see page 4 lines 19-22.

4. Last phrase of background (more recent data) does not explain how 2011 data can be defined as "most recent data".

Response: We said the “most recent data” because the dataset that we used was the latest HCES data that was available for use when this study was conducted. We have explained this in the methods section. However, we have removed the phrase to avoid ambiguity.

Please see page 5 lines 18-19 of the background section; and Page 5 lines 25-26 of the methods section.

Methods:

1. The formula in line 26 of page 4 only gives one the total adult equivalent (household size) for each household. However, in line 21, the authors states in line 21 that "Total household expenditure was converted into an adult equivalent household expenditure to account for
household size and composition..." Can they please explain how they used the formula to come up with "adult equivalent household expenditure"? How does the expenditure come into play?

Response: We used per capita household expenditure; this is clearly explained now.

Please see page 6 lines 9-11.

2. In the same formula, the authors do not justify the values of alpha and theta.

Response: We have dropped the formula and explained that we used per capita household expenditure.

Please see page 6 lines 9-11.

3. In line 9 of page 5 under the subsection "Analysis of the impoverishing impact of out-of-pocket payments", the authors state that "Impoverishing impact of OOP health spending is estimated by comparing poverty using total household consumption expenditure". This is confusing to the reader. In the previous section, you mentioned of using the adult equivalent household expenditure. Here you mention "household consumption expenditure". Are these one and the same thing? Which one did you use?

Response: We used per capita household expenditure. This is clearly explained now.

Please see page 6 lines 9-11.

4. In line 22 of page 5, the authors define a situation in which 'an individual is poor'. It is not clear what the unit of analysis was. The authors should clearly define the unit of analysis.

Response: The unit of analysis is individual. This is described now.

Please see page 6 line 15-17.

5. Line 25 of page 6 state that the 25 $1.90/day international poverty line at the 2011 purchasing power parity (PPP) and the national poverty line (Birr 3,781 per person per year were used. For ease of comparison, please convert one to the other so that we understand the difference between the int'nal poverty line and the local one.

Response: The national poverty line is converted to US$ per person per day.

Please see page 8 lines 5-6.
6. Line 4 of page 7 begins by indicating that the authors used a probit model. It is likely that when they compute how much the OOP impoverishes people, they do not necessarily come up with a binary indicator. Authors should explain how they eventually use a Probit model? The binary outcome/dependent variable compares what and what?

Response: We have explained that a binary variable (i.e. impoverishment headcount) was used in the probit model.

Please see page 8 lines 8-11.

7. Line 14 of page 7 state that the authors also measured economic activity of the head of household. What does this mean? Did each household head have one economic activity or they mean the main economic activity or what?

Response: This has been clarified. It is “whether the household head engaged in any productive work”.

Please see page 8 lines 13-14.

Results:

1. Line 19 of page 7 state 1.19%. This is a percentage point and not just a percentage. This mistake is repeated several times and should be corrected throughout the manuscript.

Response: This is corrected throughout the manuscript.

2. The authors do not state how they estimated that 877,000 people were sent into poverty by OOP. They do not explain how they came up with this estimate.

Response: This is estimated based on the total population in 2011. It is re-estimated, and description is added now. This estimate is dropped from the result section and moved to the discussion section.

Please see page 11 lines 10-11 in the discussion section.

3. Footnote on page 7 state that the authors used a November 1 exchange rate. It is not clear why they chose that specific date for the exchange rate. They should explain.

Response: This is corrected; we used the 2011 PPP. The footnote is dropped, explanation is provided in the methods section.

Please see page 8 lines 5-6.
4. Line 6 of page 8 state that one of the covariates was "having at least a child aged less than 5 years". They did not list this variable in the methods when describing the variables. The authors should.

Response: This is listed on page 8 line 15.

5. Line 8 to 14 repeats what is already states in the immediate previous sentences. They authors should correct this.

Response: This is corrected. The repeated sentences are dropped.

6. Table 2: This table is prone to misleading the reader. When you inform the reader that the categorical variable were coded 1 & 0, please also inform the reader which category that was the reference category. In addition, the authors should take care of what is written is specific rows. For example, Does the coefficient for the variable Location: Highland stand for the 1 or the 0 category? I encourage the authors to review how other papers have presented similar data and borrow a leaf from there.

Response: The presentation of the table is revised. Reference categories are indicated for all categorical variables.

Please see page 10 line 2.

7. Table 2: I would strongly encourage the authors to use marginal effects of the probit model and interpret them as such other than "coefficients" of a probit model.

Response: Marginal effects are estimated and interpreted.

Please see page 9 lines 9-19 and page 10 line 2.

8. Table 2: In most cases, similar research presents findings at 5% level of significance. The authors present results at only 1% and 10%. Is there any specific reason why this is the case? Was there no result at 5% statistically significant?

Response: We agree with the reviewer. In fact, that was what we have done. Unfortunately, there were no variables found to be significant at the 5% level of significance; the significant variables are found to be significant at the 1% or 10% level of significance.

Discussion:
1. The discussion section needs to engage with similar literature more than is the case at the moment.

Response: The discussion section is enriched by engaging more with the literature.

Please see page 12 lines 20-24, page 13, and page 14 lines 1-16

2. The discussion section also needs to give a discussion of those who were already below the poverty line.

Response: Implications of OOP payments for those already under poverty is discussed.

Please see page 12 lines 20-24, and page 13 lines 1-15

3. The discussion section can also discuss the date of the data and indicate some possible implications.

Response: This is discussed in page 15 lines 5-8

Dominic Albert Nkhoma, Ph.D (Reviewer 2): The paper addresses an important policy issue in the area of UHC. The methods are adequate for the research question. The discussion however could be based on policy changes that related to the time frame of the data for the study. The authors are basing their conclusions on policies implemented post the survey which may be overstretching the data a bit. May also be important to test whether the differences are statistically significant or not.

Response: Thank you for reviewing this manuscript and providing constructive comments.

The Ethiopian health system was undergoing reforms since 1999/2000. The paper is now revised by clearly indicating the reforms along with the timelines. It is critical to note that the share of out-of-pocket payments in current health expenditure remains high. This means that the results that we present could still represent current realities. This has been highlighted in the discussion section.

Regarding the assessment of statistical significance, it is also important to note that the share of impoverished population that is referred to represents real people. This has a very strong policy significance beyond just assessing policy based on statistical significance. For example, about one million people being pushed into poverty by paying out-of-pocket for health services is not trivial in any country. That said, tests for statistical significance were conducted for the results as shown in Table 2.