Author’s response to reviews

Title: Delay in tuberculosis diagnosis and treatment in Amhara state, Ethiopia

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Author’s response to reviews:

Dear Editor, thank you so much for mailing us the comments and reviewers’ report. We also thank the reviewers for valuable comments and critics that really help us to improve our paper. This motivates young researcher to learn experience from seniors. Please find our point by point response as follows

Reviewer reports:

Sven Gudmund Hinderaker (Reviewer 1): Research on delay is a good idea and can have impact on services. In this paper some important issues in a research paper must be improved.

⇒ Abstract: Define delay. Improve language

Response: thanks. Now, delay has been defined in the abstract section, and also we extensively revise to improve the language as seen in the new version manuscript.

⇒ Intro: Define delay. Write clear research question and clear objectives

Response: Thank you so much. Now, we define delay in the background section and clear research question and objectives described at the end of the background section of the new manuscript.

⇒ Methods: Define delay. Define all cut offs used in logistic regression. Line 92: Sample size NOT for better outcome, for higher precision in estimate. P-value for significance is OK, but it is NOT for association with TB.

Response: thank you, all have been revised based on the reviewer’s advice.

⇒ Results: Table 3 is incorrectly labelled table 2. Risk for previously treated OR 0.25 is stated as 3.6 times higher risk. This is wrong. Same error in discussion.
Response: thank you, now the errors in the result section, table 3 and discussion part have been corrected. The problem was taking new cases as a reference. But now we change the reference point to be previously treated patients that make OR of 2.94 as stated in the new version manuscript. So, the discussion part that states about three times is now correct.

➢ Table 1 OK

➢ Table 2. Heading does not say what DELAY is.

Response: thanks, now corrected as TB diagnostic delay

➢ Table 2. This should be table 3. Not surprising thos who had TB a second time had LESS risk of dalay. OR= 0.25, a quarter. You say in results and discussion that they have 3 times HIGHER.

Response: Thanks, the table is now labeled as table 3 and the OR in the result and discussion part has been corrected.

References: Most articles are OK, but almost all other documents incomplete.

Response: now revised based on the journal requirement

Sung-Ching Pan (Reviewer 2): this is an important issue discussing delay in TB treatment in Ethiopia. It presents the current condition and risk factors associated with delay, which can facilitate further quality improvement.

There are some suggestions

1. there are good discussion about patient delay and associated risk factors, as to the health system delay, there is not too much discussion.

The author may consider the reference as below

BMC Infectious Diseases. 2015 Nov; 15: 491.

Response: thanks, this paper help us a lot and now the reference has been used, reference [17], to discuss specially the health system delay.

2. abstract line 37

the direction of OR should be considered: if new infection is risk factor for delay, the OR should larger than 1
Response: thank you so much, really we learn a lot from this review. Now we change the reference point and the direction of OR have been corrected.

3. is the underlying disease status of the patients available? eg. DM or HIV infection?

Response: Please accept our apology, the point is very interesting. Unfortunately, we didn’t consider the underlying disease status of the patients. We will take this comment as limitation, and we include it at the end of the discussion part.

4. table 2 line 40

I think the item is "the perception of cause of TB by the patient"

Response: great thanks, yes it is the perception of cause of TB by the patient. And now we revise it based on the advice.

5. page 18 should be table 3

Response: thanks, now it has been corrected as table 3. It was clerical error please stated clear the adjusted OR is adjusted by which variate

Response: it was adjusted by multivariate model in the logistic regression and the method was backward LR. it has been stated in the data processing and analysis section of the method part of the manuscript. And also we noted it below table 3.

6. figure 1 is quite confusing

maybe the author want to show by a map to make it more clear?

Response: thanks, it was assumed to make it clearer and readers of the paper may understand easily about the sampling procedure. Now, we revise the figure to be more informative. If this figure still is quite confusing, we will explain the sampling procedure using text only after the reviewer advice.

Rubia Laine de Paula Andrade (Reviewer 3): Manuscript with important issue for public health, since the delay in TB diagnosis may contribute to the increased burden of disease. However, the study needs adjustments and contributes little to the knowledge advance.

➔ Title-too long. It could be synthesized.
Response: Thanks, now the title is synthesized as “Delay in tuberculosis (TB) diagnosis among patients taking TB treatment at health facilities in North Shoa Zone, Ethiopia”

⇒ Abstract - ok. It describes the study as a whole.

⇒ Background - the literature review is questionable, since it says that only one study looked at the TB patients behavior of search for health services. Authors have to be careful with this statement, saying the databases and the period considered in the bibliographic survey. Authors could end the background with the objective of the study and with its hypothesis. In the introduction and methods, there are many repeated phrases that should be reviewed.

Response: thanks for the advice, which has important inputs to improve our paper. Now, the statements in the literature review has been revised, hypothesis and objectives described at the end of the background and also we tried to minimize repeated phrases in the new version manuscript.

⇒ Methods - Study site could be better explained, talking about how the behavior of TB in this place is and why it was chosen. Authors should explain how care is organized to attend acute cases of TB in the studied region and what kind of services are available to these cases (Primary Health Care services, Emergency services).

Response: Thank you, the study site, behavior of TB, health care and kind of services and have been explained well in the new version manuscript.

⇒ I couldn't understand what woreda is.

Response: the word “woreda” means district. And in the new version manuscript we change it by the word “district”

⇒ I couldn't understand the randomization process if the authors included in the study all patients who were undergoing treatment for TB. I couldn't understand the sampling procedure since all patients of the woredas were included.

Response: thank you, now it has been described well and we try to clarify more. In brief, there are 24 woredas/districts in the North shoa zone. From the total districts, we took 30% of the districts, which are seven. Then, the seven districts were selected from their clusters previously grouped based on geographical proximity and climate of the districts found/hot area or cold/ to represent the zone. Then, all of the patients who took anti-TB treatment from government health facilities in the seven selected districts of north Shoa were included in the study.

⇒ I couldn't understand how the clustering was done. I question the quality of selection of the participants of the study in period after the diagnosis, since it may lead to a recall bias.
Response: thanks, the clustering was done based on geographical accessibility and climate of the districts found in the zone to represent the population well. These have been included in the new version manuscript. Regarding recall bias, we consider it, but were not other options to find the information/data. It is limitation of the study and we describe in the discussion part of the new version manuscript.

Furthermore, I question the participation of children. How do they answered to the questionnaire?

Response: thank you so much, children’s data were collected by interviewing of their parents/guardians. Now it has been included in the manuscript.

Population of the study - I wonder how many patients with TB were in the studied region and how many effectively participated in it?

Response: Thanks, there were 1973 new TB patients and 126 previously treated TB patients in the zone. The study population, total of patients on anti TB treatment in the sampled districts, was 170. However, eight were not willing to respond during the data collection. So, 162 study participants, study population since we took all of the patients, making response rate of 95.3%. Now, it has been described in the method and result sections of the manuscript.

Results - tables with incomplete titles - could include location and period of the study. The description of the tables in the text are also incomplete.

Response: thanks, now the tables have been revised and titled with location and period of the study and also described using texts.

Discussion - at the end of the discussion, author could advance to an understanding of the role of the local health system organization in the TB diagnosis and not only in specific requirements related to the variables of the study.

Response: thanks, now it has been included as the reviewer advice.

Conclusions - ok. It summarizes the main findings of the study.