Author’s response to reviews

Title: The prevalence of tuberculosis among prisoners in Ethiopia: A systematic review and meta-analysis of published studies

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Version: 1 Date: 27 Apr 2017

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Tuberculosis in Ethiopian prisons: A systematic review and meta-analysis

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Dear editors

Achieves of Public Health

We thank the reviewers for their insightful comments, which have certainly improved the quality of our paper. Below, we provide a point-by-point responses to the reviewer’s comments. We hope you will find the paper suitable for publication and we look forward to hearing from you in the earliest convenience.

With regards
Addisu Melese

On the behalf of the authors
Responses to reviewers’ comments

Reviewer #1: There are some weaknesses in the methodology that should be resolved:

Response: Thank you for your insightful comments that help us to improve the methods in the review. Below is a point-by-point response for the raised issues

- Authors should revise their manuscript with the help of the PRISMA guidelines. It could definitely improve the quality of the reporting.

Response: We have followed the PRISMA selection flowchart guideline (fig. 1) but as requested, we attached the PRISMA reporting checklist as an additional file (additional file 2)

- The study design should be one of the inclusion/exclusion criteria.

Response: Agreed and done as suggested

- Authors should report the date limit of their search.

Response: Agreed and done as suggested

- Authors did not perform any research in the grey literature. They should discuss about this weakness in the discussion.

Response: Agreed and done as suggested

- It appears that authors did not perform a manual search in the bibliography of relevant studies. They should discuss about this weakness in the discussion.

Response: We have searched citations of the relevant studies but we didn’t find any relevant article to be included in the review. We indicate this in the search strategy as suggested (page 4, lines 16-17)

- Complete search strategy could be provided as an additional table.
Response: The search strategy was already stated (page 4, lines 12-15). The full combined MeSH terms and search results is included as a text.

- The last sentence of the « data sources and search strategy » part is already a result. Please move this sentence to the results and give some information based on the flowchart.

Response: Agreed and done as suggested

- No information is given about the number of authors that performed the study selection. According to PRISMA guidelines, study selection (both rounds of title and abstract and full-text review) should be performed by two independent reviewers. This is also valuable for data extraction.

Response: Agreed and done as suggested (page 5, lines 1-14)

- The assessment of quality of individual studies is not clear. Authors should use published and validated tool designed to assess quality of cross sectional studies. Moreover, sensitivity analyses should be performed according to cut-offs of quality.

Response: Agreed and done as suggested (the checklist are attached as additional file 1, page 5, lines 4-7). Sensitivity analysis is done for estimates having significant heterogeneity to check which studies are the prime determinants of pooled result and sources of heterogeneity.

- It is not clear how authors defined their subgroups (by using the median value? By personal choice?, etc.)

Response: Agreed and we removed the subgroup analysis as there is an issues of cut offs. We only stratified studies based on diagnostic test used as secondary outcome in the analysis.

- Table 2 is not clear at all. How could authors get pooled prevalence for individual studies?

Response: Table 2 is a sensitivity analysis table. And the results are not polled from individual studies. Sensitivity analysis is done by excluding studies step-by-step to show the pooled effect sizes and associated heterogeneity. There are ten studies included and the sensitivity analysis is so done based on nine studies. The whole process of analysis is stated on page 6, lines 40-46.
- Assessing risk factors and drug resistance are not announced as objectives of the study. It is quite surprising to present these results with subtitles. Maybe these results should be given in the first part of the results, as a characteristic of included studies.

Response: Accepted and done as suggested

- Authors did not compute a p-value between groups for their different subgroups. Still regarding these subgroups, it is not clear why a forest plot has only been dressed for microscopy

Response: We have seen that a significant difference was observed in the diagnostic test subgroup and presented in forest plots. We removed the subgroup analysis as raised a concern above but we stratified the studies based on their diagnostic tests employed and presented in forest plots

Reviewer #2:

Background:

1. At the end of the first paragraph line 13 page 3, the authors only cite 2 manuscripts (opinion and manual). I suggest inserting an original reference (Urrego, 2015)

Response: Accepted and the reference is cited as recommended (reference no 16)

2. In the penultimate paragraph, line 47, page 3, instead of citing a manuscript of opinion, I suggest citing an original article (Patussi, 2015)

Response: accepted and the reference is added as recommended (reference no 20)

Methods:

1. Define in methods how was calculated the prevalence and point prevalence

Response: the methods of calculation of prevalences and point prevalence is included in the methods part as suggested (page 6, lines 13-17)
2. Refer to LFK index and rewrite line 46 and 47 on page 5.
Response: LFK is referred and re-written as requested (reference no 23)

Discussion:
1. Remove the last sentence from the first paragraph of page 8 (lines 18-20).
Response: Agreed and done as suggested

2. Remove (where Ethiopia is found) from the second paragraph of page 8 (line 28).
Response: Agreed and done as suggested

3. On page 9 line 22 quote the original articles of the statement: "This is obviously clear that overcrowding increases the risk of contracting TB; Hence increasing the prevalence (Ex: Urrego, 2015)
Response: Agreed and done as suggested

Reviewer #3:
Authors are discussing a subject of interest to those working on the health of prisoners
Thank you for your serious concern

- Authors need to conform to guidelines of scientific writing and mind the many syntax errors.
Response: We have tried to follow scientific write up and revised point by point to correct syntaxes throughout the whole manuscript

- Authors need to be consistent when referring to people in prisons (detainees, prisoners, inmates)
Response: We accept the suggestion and operationally defined (page 6, lines 11-12)
Abstract:
- Spell words before providing acronyms (e.g. 95% CI)
Response: Agreed and done as suggested

- At the conclusion: "No evidence was found on the status of latent TB, treatment outcome.....". Not sure about the context of this paragraph as it is not part of your study aim or search strategy!
Response: latent TB is part of the objective as the objective was to pool the result of individual studies on TB in prison settings. The later (treatment outcome) is actually not part of the objective and removed.

- Keywords: you may want to add "meta-analysis" or "review"
Response: Agreed and done as suggested (the two words are included as key words)

Background:
- You need to dedicate a paragraph discussing the current policies in the Ethiopian prisons in terms of screening and managing TB, and especially in relation to WHO approved preventive and control policies, e.g. "Three Is"
Response: already stated on page 3, lines 25-27

- "Globally, the prevalence of tuberculosis (TB) among prisoners...", provide the reference for this!
Response: accepted (reference no 1 is added)

- The second paragraph "Although prisons have healthcare centers that provide...", I am confused here, are these healthcare centers related to the prison or to the Ministry of Health in the community? As I mentioned above, we need to know about the infection control measures in the prison rather than the community (?) centers.
Response: As mentioned, prisons have health centers established to give diagnosis and treatment of TB for prison population, but the centers are not well functioning so that prison patients are forced to seek the services from outside health centers. We rephrased it to make it more clear.

- Same paragraph: Which is meant by the word "reservoir"? Prisons or the healthcare centers?
Response: Prisoners. Because prisoners get healthcare services outside health centers, they will become a reservoir for both inmates (as diagnosis and treatment will be delayed, they become chronic patients) and general population (as they go to community healthcare centers for diagnosis and treatment).

- "global end TB strategy": end should start with capital E. "creating opportunity", either "the opportunity" or "opportunities"
Response: Agreed and done as suggested.

- "... for potential infectiousness": not sure this is the aim of systematic screening, but rather to early diagnose and minimize transmission, disability, and death.
Response: Systematic screening during admission is to identify whether the detainees are infected with TB or not (early diagnosis). If they are found infected with TB, they will be treated accordingly; this helps to prevent transmission (to prison population and visitors), disability and death. Assessing for potential infectiousness in or in the other way is to prevent the transmission, disability and death from TB.

Methods:
- The dates of searching data should be mentioned
Response: Agreed and done as suggested (page 5, lines 11-12)

- Although usually not peer-reviewed, grey publications are relevant here and should have been explored or at least referred to in the text.
Response: Agreed and discussed (page 10, lines 13-14)
- Not sure why English language publications only were included, despite authors being from Ethiopia. I would include any publication relevant to the subject of the study to have a better picture.

Response: Actually publications from Ethiopia are almost in English. Unless manuals, leaflets and other working documents, publications are in English and we used English as criterion to exclude such documents from the search especially while searching google scholar.

- Authors need to provide a checklist of the quality assessment of each paper, particularly of biases (recruitment, outcome measurement...)

Response: Agreed and done as suggested (additional file 1, page lines 5-7)

- You need to set your definition of TB disease, either using WHO guidelines or a simplified one.

Response: Agreed and done as suggested (page 6, lines 8-10)

- Provide reference for the statistically significant heterogeneity cutoff used in the study

Response: Agreed and done as suggested (reference No 23)

Discussion:

- Page 7: "This pooled prevalence is comparable with reports from South Africa....", South Africa prisons or community clinics...?

Response: Mangaung Correctional Centre (a privately administered prison situated in Bloemfontein, the capital of the Free State province), so it is a prison (page 8, lin 23)

- Page 8: "On the other hand, our result was less than ....", use more scientific way of expressing this.

Response: Revised and tried to make it scientifically sound
Page 8: "where Ethiopia is found", replace with "located"

Response: Agreed and done as suggested (page 9, line 8)

Page 9: When assessing the TB prevalence in overcrowded cells, you will need to include calculations about the surface area of each cell in relation to the number of prisoners.

Response: agreed with the concern but as this is a systematic review derived from published articles, we are unable to calculate the surface area of cells related with number of prisoners. We tried to derive the surface area of cells from included studies but we can't get it.

Authors need to properly discuss the high level of heterogeneity, its potential causes and its effect on drawing the conclusion from these findings.

Response: Already stated under heterogeneity (page 7, lines 7-10) and sensitivity analysis (page 7, lines 11-15)

Conclusion:

Again, is it relevant to mention information about latent TB here?

Response: Our objective is to summarize available individual studies on TB in prison settings and latent TB is part of the objective we designed. None of the studies addressed the hidden problem of TB; i.e. latent TB. And we believe that sharing this information may help researchers to be interested on latent TB in prisons; which is a focus of research in other countries as it has a chance to develop to disease and can affect lots of individuals especially in prisons.

"Trainings on infection prevention for prisoners and prison staff", not sure what this means? Try to re-phrase to make it clearer.

Response: agreed and rephrased (page 11, lines 27-28)

References:

Check references for mistakes. Example: Reference 27 (the first author is Kamarulzaman A)
Response: We used the recommended citation from the publisher of the article. Otherwise, the author is same; Kamarulzaman Adeeba. While citing, either Kamarulzaman A. or Adeeba K. can be used. We corrected it as your suggestion (reference no 31).