Author’s response to reviews

Title: Prevalence and associated factors of safe and improved infant and young children stool disposal in Ethiopia: evidence from demographic and health survey

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Author’s response to reviews:

Author Response to the editor and reviewers comments

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“Prevalence and associated factors of safe and improved infant and young children stool disposal in Ethiopia: evidence from demographic and health survey”

Dear Editor,

It is a prestigious opportunity for me to receive constructive comments and advice to the improvement of the current manuscript. With all the respect, I thank you. I carefully considered and taken all of your comments when I revised the manuscript again. I also addressed the entire reviewer’s comment. Dear all, I used “Yellow Text Highlight Color” for all affected revisions and corrections in the “Revised Manuscript”. Please follow a detailed point-by-point response to the editor and reviewers point raised.

Reviewers comment

Shervin Hashemi, Ph.D. (Reviewer 1):

My respected reviewer, above all I am so glad to have such wise advice and constructive comments from you. Yes, all your comments are valuable for the improvement of the current manuscript. Thank you. Please follow a detailed point-by-point response.

Comment

1. Major Concerns:

1.1. Page 2, Lines 38-40: In the abstract, you have mentioned that "having improved toilet facility and presence of diarrhea were not significantly associated with safe child stool disposal."
It is not clear what you are trying to say. In page 10, line 227-229, we read "In support of this, a study conducted by Bawankule et al reported that children whose stools were disposed of unsafely were more likely to suffer from diarrhea than children whose stools were disposed of safely." Then how the presence of diarrhea was not significantly associated with safe child stool disposal? Moreover, "having improved toilet facility was not significantly associated with safe child stool disposal" means that people who are having improved toilets at their house are disposing of the child stool in a risky way. Is that really so? Then this means that there are people who have toilets but they are disposing of the child stool in the open. If so, I wish you could discuss and explain why we have such a phenomenon and how we can overcome it.

Response

Thank you for the comment. I discuss the issue in brief in the discussion section. In addition, I paraphrased the sentence for better understanding in the abstract section. Please see the revised manuscript abstract and discussion section.

In brief, even if different studies reported that children whose stools were disposed of unsafely were more likely to suffer from diarrhea. The adjusted odds ratio in this study from the multivariable logistic regression model indicated that having improved toilet facility and presence of diarrhea were not significantly associated with safe child stool disposal when adjusting for other variables. In the same way, we also read from a study by Mahfuza Islam (https://doi.org/10.1371/journal.pone.0195218 ) reported unsafe feces disposal was not significantly associated with the prevalence of diarrhea among children <3 years.

The absence of such association might be explained in number of different reasons. The first reason might be due to the age category of children. This age category of children (< 2 years) may not be able to use toilet facility because of their age and stage of physical development. As a result having improved toilet facility may not have any significant effect on childhood diarrhea.

In addition, this age group of children’s may acquire diarrhea for a number of reasons other than unsafe disposal of feces. Such as psychosocial factors (feeding practice and nurturing), mother personal hygiene, and environmental sanitation. Moreover, children under age 6 months and those 6-11 months were not beginning walking and less likely to exposed to contaminated environment.

In the same way, in this study having improved toilet facility not significantly associated with safe child stool disposal. As evidence from the multivariable logistic regression result odds ratio suggested that households with improved toilet facility have decreased odds of safe child stool disposal [AOR=0.99, 95%CI(0.67-1.45)]. So, there might be people who have improved toilets facility but they are disposing of the child stool in the open (put/rinsed into drain or ditch/ throw into garbage or left in the open/not disposed of).

These finding suggested that even those with access to improved sanitation facilities often fail to use them for disposal of child feces. Meaning, people who are having improved toilets at their house are disposing of the child stool in a risky way. Access to sanitation facilities is a prerequisite to ending open defecation as well as unsafe child stool disposal, but it is not always a
sufficient condition to overcome such phenomena. Studies also identified improvement and presence of physical sanitation infrastructure alone is not sufficient to ensure safe hygienic practices. In overcome such situation, robust sanitation promotion and strong behavior change program that targeted on the determinants of behaviors is important.

Comment

1.2. Page 4, Lines 75-76: "Still, hygienic collection and disposal of young children's feces is rarely done and difficult." Can you explain why? Are there any specific barriers? How can we overcome them? How your study can help to overcome such problems?

Response

Thank you for the comment. As per your wise advice I revised the whole statement accordingly. Please see the revised manuscript background section.

Comment

1.3. Page 6 Lines 100 - 102: "A community-based cross-sectional study was used, and the recent nationally representative population-based Ethiopian Demographic and Health Survey (EDHS-4) data conducted in 2016 was used in this analysis." This phrase is very unclear. Have you done the community-based cross-sectional study by yourself and separately you have used the EDHS-4 data? Or this community-based cross-sectional study was a part of the EDHS-4? Please clearly mentioned which part is your contribution and which part is done by referring to the EDHS-4 data?

Response

Thank you for the comment. As per your wise advice it is corrected accordingly. And I removed the word “A community-based cross-sectional study was used” since the study used the EDHS-4 data for analysis. Please see the revised manuscript method section.

Comment

1.4. Page 6, Line 108: You are mentioning that you have conducted the survey for men aged 15-59, however, the results are not reporting anything about the role of "fathers" or evaluation the gender of parents. I think that child lower than 2 years old usually might be mainly raised and managed by mothers unless there is another specific condition. So is there any specific reason that the author has included men in this survey? If so, how are you reflecting the related results and discussions?

Response
Thank you for the comment. And your comment accepted and it is corrected accordingly. For your information, I mentioned men age 15-59 in the current manuscript just to give the readers the general overview of the EDHS data file. As per your advice I remove the statement. Please see the revised manuscript study design, setting, and data section.

Comment

1.5. Page 6, Lines 116-118: "The WHO/UNICEF Joint Monitoring Program (JMP) for water supply and sanitation definition was used to get information about the disposal of the child's stools." This sentence is not clear. What kind of information have you got from JMP? Please list them and cite.

Response

Thank you for the comment. It is revised cited accordingly. In brief, the toilet facility and source of drinking water were categorized into ‘improved’ and ‘unimproved’ following the WHO/UNICEF Joint Monitoring Program (JMP) core questions definition. I used the suggested recent WHO Guidelines on Sanitation and Health (https://www.who.int/water_sanitation_health/publications/guidelines-on-sanitation-and-health/en/) for disposal practice of child stool disposal. Please see the revised manuscript.

Comment

1.6. Page 6, Line 121: "The outcome variables were constructed based on the WHO/UNICEF definition." I suggest the author reviewing the WHO 2018 Guidelines on Sanitation and Health. Please check the link below carefully, think again about the outcome variables that you have considered, and cite if necessary.


Response

Thank you for your wise suggestion. It is checked, revised and cited accordingly. As per your wise advice and I reanalyzed the outcome variable; according to the new 2018 WHO Guidelines on sanitation and health suggestion. In page 17 safe child stool disposal defined as “Disposal of child feces in a toilet connected to a safe sanitation chain is the only safe method where solid waste management systems for children’s absorbent underclothes (nappies) disposal are not safe”. As a result I reanalyzed and dichotomized the outcome variables. Please see the revised manuscript.

Comment
1.7. Page 6, Study Variables: The author only considered the dispose of the child stool. I think that the collection of it is an important parameter which should not be missed. Are all child stool are collecting by dippers or there are other ways for collection which are not hygienic? Please consider this and revise accordingly.

Response

Thank you for the comment. It is very interesting comment. Unfortunately the EDHS data does not have any variables that address your concern. Even though, collection of child stool is important factors. Thus, I admit this issue as limitation of the study. Please see the revised manuscript limitation section for detail clarification.

Comment

2. Minor Comments:

2.1. Page 2, Line 16: What do you mean by less harmless? Less harmless = more dangerous! It does not match with the content of your sentence. I strongly recommend the author let the whole manuscript undergo an English language editing process so that the manuscript could become easier to read and understand.

Response

Thank you for the comment. It is corrected according to your wise advice. Please see the revised manuscript.

Comment

2.2. Page 5, Line 91: "Perhaps, children's stool disposal practice itself is an under-researched subject in Ethiopia." Perhaps? So you are not sure? If you are not sure, please remove this sentence. If you have some examples for such research or studies, please cite. In any case, I suggest the author to avoid using words like "perhaps" since it may make the work inappropriate as a scientific paper for a prestigious journal like BMC Public Health.

Response

Thank you for the comment my respected reviewer. It is removed according to your wise advice. Please see the revised manuscript background section.

Comment

2.3. Page 5, Line 92: I invite the author to revise the phrase "To the best of my knowledge" into "To the best of the author's knowledge."
Response

Thank you for the comment my respected reviewer. It is corrected according to your wise advice. Please see the revised manuscript background section.

Comment

2.4. Page 6, Lines 109-110: "The detailed methodology is found elsewhere [1]." This may not be a much suitable and appropriate way to write in a high-class research paper. I suggest the author removing this phrase, and instead start the paragraph from line 100 as: "The study was conducted following the methodology presented by Central Statistical Agency (CSA) and ICF [1]."

Response

Thank you for the comment my respected reviewer. It is corrected according to your wise advice. Please see the revised manuscript method section.

Comment

3. Ultra-Minor Comments: The author can think about the comments below but he is free to decide either applying them to his work or not.

3.1. Page 7, Statistical Analysis: Explaining in details is good. However, I feel that there are too many explanations about p-value in this section. Instead of all these explanations, you can simply mention "The ANOVA analysis was applied with $\alpha=0.05$"

Response

Thank you for the comment. It is corrected according to your wise advice. Please see the revised manuscript statistical analysis section.

Comment

3.2. Whole Manuscript: I am very surprised that such a heavy work was done and now it is being reported in a paper with only one author. Also, there is no acknowledgment. Honestly speaking, it is a little unbelievable! Please be fair and consider adding more authors in the case that if there was any other person who has helped you with this work and may have noteworthy contributions. If this is really a work done by the author alone, and there was no funding process to be acknowledged, then this comment can be neglected.

Response
Thank you for the comment. Please see the revised manuscript acknowledges section. In brief, this research did not receive any specific grant from any funding agencies in the public, commercial, or not-for profit sectors.

4. Overall Evaluation:

In total, I have found the paper informative. The presented results are interesting. However, I am still raising a numerous amount of comments which I hope to be helpful for the author to improve the work.

With all the respect I would like to thank my respected reviewer for your priceless comments and wise advices.

Reviewer 2 (Reviewer 2): PEER REVIEWER ASSESSMENTS:

OBJECTIVE - Full research articles: is there a clear objective that addresses a testable research question(s) (brief or other article types: is there a clear objective)?

Yes - there is a clear objective

DESIGN - Is the current approach (including controls and analysis protocols) appropriate for the objective?

Yes - the approach is appropriate

EXECUTION - Are the experiments and analyses performed with technical rigor to allow confidence in the results?

Yes - experiments and analyses were performed appropriately

STATISTICS - Is the use of statistics in the manuscript appropriate?

Yes - appropriate statistical analyses have been used in the study

INTERPRETATION - Is the current interpretation/discussion of the results reasonable and not overstated?

Yes - the author's interpretation is reasonable
OVERALL MANUSCRIPT POTENTIAL - Is the current version of this work technically sound? If not, can revisions be made to make the work technically sound?

Yes - current version is technically sound

PEER REVIEWER COMMENTS:

GENERAL COMMENTS: My overall impression is the study has highlighted an often overlooked aspect of hygiene and sanitation practices among populations. Authors have that the prevalence of safe/improved disposal of child stool is very low across rural and urban settings in Ethiopia. They have also shown the importance of considering child stool disposal as an integral component of programs targeted for the elimination of open defecation.

The authors have done well by using an efficient source of data to achieve a large scale representation of the target population and have employed a standard tool for assessment of the study variables. They have also expressed important cautions to be considered as limitations of the study.

This study had met international best practices

Response

With all the respect thank you my respected reviewer 2

REQUESTED REVISIONS:

ABSTRACT

Comment

Line 21: "…conducted in 2016 was used for…”

Response

Thank you for the comment. It is corrected according to your wise advice. Please see the revised manuscript abstract section.

Comment

Line 67-8: Children's what? There seems to be something missing in the sentence. Please revise the sentence for correctness.
Response

Thank you for the comment. It is corrected according to your wise advice. Please see the revised manuscript background section.

METHODS

Comment

Line 107: Do you mean, "…selected from the newly updated listing…”?

Response

Thank you for the comment. It is corrected according to your wise advice. Please see the revised manuscript method section.

Comment

Line 112: Do you mean, "…of the last passed stool with respect…”?

Response

Thank you for the comment. It is corrected according to your wise advice. Please see the revised manuscript method section.

Comment

Line 142: Correct to, "Chi-square test was also…”

Response

Thank you for the comment. It is corrected according to your wise advice. Please see the revised manuscript method section.

Comment

Line 150: Correct to "tests".

Response
Thank you for the comment. It is corrected according to your wise advice. Please see the revised manuscript method section.

RESULTS

Comment

Line 172: The logistic regression analysis parameters stated for Addis Ababa do not correlate with the figures provided in Table 4. Please verify accordingly.

Response

Thank you for the comment. It is corrected accordingly. Please see the revised manuscript method.

Comment

Table 4: Do you have an intended meaning for the "(4143)" indicated in "Mother's age (4143)?"

Response

Thank you for the comment. It is corrected accordingly. Please see the revised manuscript section.

Comment

Line 223-225: when there is improper child's stool disposal in the community, both adults and children are at risk of enteric disease infection and not just the children alone.

Response

Thank you for the comment. It is corrected accordingly. Please see the revised manuscript discussion section.

Comment

Line 230: Correct to "…lack of sanitation Is widespread."

Response
Thank you for the comment. It is corrected accordingly. Please see the revised manuscript discussion section.

Comment

Line 240-1: Please revise the sentence for correctness and clarity.

Response

Thank you for the comment. It is corrected accordingly. Please see the revised manuscript discussion section.