Author’s response to reviews

Title: Factors associated with diarrheal morbidity among under-five children in Jigjiga town, Somali Regional State, eastern Ethiopia: A cross-sectional study

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Author’s response to reviews:

Responses to the comments of Reviewer #1

There are grammatical errors throughout the paper that need to be addressed. Major reorganization of the discussion section is needed.

Response: We have as much as possible tried to revise grammatical errors throughout the document. We have added on the content of the discussion section. (Line 278, P.13 & Line 291, P.14)

Was this a cross-sectional evaluation of diharrea? The study design should be clearly stated.

Response: Yes this was a cross-sectional evaluation of diharrea. This is stated both in the “Abstract” section (Line, Page) and “Methods” section (Line 29, P.2 & Line 113, P.6)

The second paragraph should become the first paragraph of the introduction.

Response: We have interchanged the two paragraphs (Line 52 & 59, P.3)
The following sentence needs to be rephrased “Child under five years of age experiences an average of three annual episodes of acute diarrhea [4].”

Response: We have rephrased the sentence (Line 56, P.3)

Line 85: “diharrea” check spelling
Response: All the words “diharreal” are now changed to “diarrheal” using Ms Word’s Find and Replace feature (Line 83, P.4)

More details are needed on the Health sector development program (HSDP)
Response: We have added a sentence to clarify for the reader what HSDP IV is (Line 87, P.5)

Lines 97-102 more references are needed here
Response: After reviewing references, we have added two references from the existing list that support the argument that diarrheal diseases are multi-sourced (Line 100, P.5)

Line 126: Kebeles should be explained
Response: The term “Kebele” is explained in its first use in the “Methods” section (Line 7, P. 131)

Line 132: more details should be provided on the multistage sampling technique
Response: We have elaborated on the sampling technique and stages of sampling involved (Line 131, P.7)

Diarrhea is spelled wrong in several places
Response: We have corrected all misspelled words (i.e. Diarrhea) found throughout the document with Microsoft Word’s Find-and-Replace feature.
The section on the small size calculation is unclear and should be revised

Response: We have revised it and it now clearly states every assumption used for the sample size calculation (Line 124, P.6)

Line 184: the following sentence needs to be revised “The questionnaire was pretested”

Response: We have revised the sentence to make it more clear (Line 176, Page 9)

Not clear informed consent was obtained from all study participants

Response: As it is stated under the “Ethical Considerations” section of the document, prior to data collection, all study participants were informed that data collection was based on willingness; and data would be collected only after informed verbal consent was received and the data collector put their signature on the questionnaire to confirm receiving consent (Line 202, P.10)

I think this statement “nearly half 234(47.6%) of the mothers were in the age range of 25-34” can be removed.

Response: We have removed the sentence (Line 219, P.11)

Line 221: years need to be added to the following statement “28.6 (+6.57)”

Response: We have added “Years” to the statement. (Line 220, P.11)

Line 231: it would be good to use the joint monitoring program definition for improved water sources here.

Response: Line 231 is part of the “Results” section of the document where we simply put main findings. The type of water source mainly used by the community is explained in the “Discussion” section (Line 314, P.15)

Line 241: Burning household waste is not commonly referred to as a proper way of waste disposal.
Response: We have removed the sentence (Line 240, Page 12) and modified the operational
definition (Line 162, P.8) to include” Burning” under “Improper solid waste disposal method”

Line 252: “Almost half of the children were above the age of 23 months.” Age ranges should be
clearly stated here.
Response: We have modified the sentence to clearly indicate all the age ranges. (Line 224, P.12)

Line 284: The first paragraph of the discussion section should be summarized the findings not refer to other studies.
Response: We have deleted the whole paragraph and replaced it with one which summarizes the
main findings. (Line 278, P.13)

Paragraphs two and three from discussion section should be combined.
Response: We have combined the paragraphs two and three of the discussion section. (Line 283, P.14)

Definitions for improved and unimproved toilets and water sources should be included in the footer of tables.
Response: We have already included all the operationally defined terms in the “Methods”
section. (Line, Page) We were worried that if put operational definitions of terms in the tables’
footers, it would consume more space as we have to put all the operational definitions for terms:
“Improved water source” , “Unimproved water sources” , “Dirt floor”, “Non-dirt floor”,
Improved liquid waste disposal (toilet), “Unimproved liquid waste disposal (toilet)” all under
table 2.

Responses to the comments of Reviewer #2

This paper describes the prevalence and correlates of self-reported community diharrea among children living in Ethiopia.
The paper provides a good description of households but could use some improvements in the organization and conciseness as well as adding to the detail and discussion of the findings from the measures of association.

Response: We tried to address conciseness by removing unnecessary details from Background, Methods, Result, Discussion and Tables. We have added on the content of the discussion section. (Line 278, P.13 & Line 291, P.14)

Background:

The organization of the background could be improved starting with the estimates of diharrea morbidity and mortality worldwide, in Ethiopia specifically, and gaps in what’s known about diharrea in Ethiopia (aka the gap in the published literature that this study is addressing). The current background seems to provide a lot of data and evidence around childhood mortality and diarrhea mortality, but little rationale for how this study moves the field forward since it's not addressing mortality.

Response: we have removed the last paragraph of ‘Background’ and replaced it with one which explains the rationale or significance of conducting the study in the study area as well as acknowledges the gap in the published literature: (Line 103, P.5)

Line 107-I would be cautious with using the term “causal” for the correlates that were evaluated in this study as none of the correlates actually “caused” diarrhea (causes of diarrhea include enteric infections, antibiotics use, etc) however they could be considered “risk factors” or “predictors” of diarrhea.

Response: We have replaced the term “Causal” with the term “Predictors”. (Line 107, P.6)

Methods:

Methods section should be considered substantially as it contains details that may not be necessary (for example ethical statement could be condensed into a single sentence that reads: All caregivers underwent informed consent for participation in the study and ethical approvals
Response: We have reduced some unnecessary details from the “Ethical Statement” section and modified it accordingly (Line 202, P.10)

Results:

Descriptive statistics could be combined into a single table 1 which organizes the characteristics thematically (demographics, clinical history etc). The descriptive results could be described more concisely and more detail be given to the results of the modeling.

Response: To make the document more concise, we have removed descriptive results which are not pertinent to the final discussion. We have merged table 1 and table 5 into a single table that includes both maternal and child demographics. And, table 3 and 4 were also merged in to a single table that includes environmental conditions of households reducing the total number of tables from six to four. (Line 452, P.22, Line 461, P.24)

Table 6 only shows the results of statistically significant results. Without showing the non-significant results, the reader does not know how many statistical tests were performed nor can the reader get a sense for magnitudes of association irrespective of the statistical significance. I would suggest consolidating a table 1 and then using a similar table for the crude and adjusted odds rations. Also, the adjusted OR column does not indicate which variables were included in the model as confounders. It is safe to assume that the model contained only those variables listed in the table? The earlier language around backwards stepwise regression suggests that this may not be the case.

Response: As can be seen in the methods and questionnaire section, the study initially incorporated numerous variables including child demographic and feeding status variables among others. After conducting bivariate analysis, only variables which were significantly associated with underfive diarrhea at a cut-off point p value 0.3 were moved into the multivariable model for further analysis. The table shows only the output of the final step of the “stepwise multiple logistic regression” and not all the variables subsequently removed at each
step. As the purpose of the stepwise regression was to identify variables which are independently associated with the response variable, we only displayed the last model containing variables which serves as an input in discussing the main findings.

Line 265-269 describe methods and thus should appear in the methods instead of the results.

Response: We have moved the paragraph to the sub-section “Data Processing and Analysis” of “Methods” section. (Line 195, P.10)

Responses to the comments of Reviewer #3

Overall view

The article has focused on diharrea and it determinant in a developing Region of Ethiopia and factors related to water, sanitation, and hygiene. The study content is relevant to Ethiopian context, where open defication is still persistent.

Major compulsory revisions

Title: Pls revise the methods section: risk factors cannot be determined by a cross-sectional. Did you want to say determinants?

Response: We have replaced the term “Risk factors” with the term “Determinants” including the topic. (Line 1, P.1& Line 257, P.12)

Background section (change the “Introduction” title in to Background)

Response: We have changed the term “Introduction” to “Background” (Line 51, P.3)

Pls follow the structure of this section in chronology order:

Background information, statement of the problem, focusing on what is unknown i.e. the gaps that initiated this study, and finally the significance
Response: we have removed the last paragraph of ‘Background’ and replaced it with one which explains the rationale or significance of conducting the study and acknowledges the gap in the published literature (Line 103, P.5)

Methods section

Pls indicate who are really study subjects in a household with 1 wife?? This can be addressed in the sampling section as well

Response: We understood this question was meant to address sampling procedure in households with more than one wife. If that is so, we included only one mother from a given household, but in the case where there is more than one mother (or wife, as is common in Muslim culture), we used lottery methods to choose one. Which is explained (Line 142, P.7)

Include the inclusion criteria briefly

Response: We have added a new sentence describing the inclusion criteria (Line 145, P.7)

The descriptions on sample size under “sampling and variables” must be stated separately. Likewise the variables should not blended in this section. Pls address each separately

Response: We have separated the two sections and moved “Variables” to under section “Data collection” (Line 169, P.8)

Which child was taken as an index for a diarrhea if there are >1 underfive children?

Response: We used lottery method to choose one index child; which is now indicated in the document (Line 142, P.7)

There are two specific objectives that require adequate sample size. How would you verify if the sample size that was calculated to address the 1st specific objective is adequate for the “risk factors” objective?

Response: We initially calculated sample size for both objectives i.e. Prevalence and risk factors, and chose the higher sample size in order to increase representativeness of the sample
What tools were used for assurance of data quality as checking of completeness as stating checking the quality does not mean anything

Response: In order to ensure data quality adequate training was given to the data collectors on methods and data collection and techniques of face to face interview. In addition, pre-test was done to find out if there was a need for clarification and amendment of the original questionnaire. (Lines178, 182, P.9)

Elaborate how the multivariate logistic regression was planned and done. The description indicated in the result section must be part of the methods. Results are just results.

Response:
Steps of bivariate and stepwise logistic regression were included. (Line 196, P.10) We have moved the paragraph to the sub-section “Data Processing and Analysis” of “Methods” section. (Line 195, P.10)

Ethical statement: better to state as “ethical consideration” also indicate how privacy was maintained.

Response: We have replaced the term “Ethical statement” with “Ethical Consideration” (Line, Page). Privacy was maintained by not using personal identifiers of any kind such as Name, House No etc (Line 201, P.10)

Results
Correct Result as Results

Response: We have changed the term “Result” to “Results” (Line 215, P.11)

7% non-response is really a big number. Pls describe what causes? The implication on the results while discussing or considering limitation.

Response: As much as possible, non-response bias was minimized as we included a diverse study population comprised of respondents from diverse socio-demographic backgrounds (age, educational status, area of residence etc) and, an adequate sample size was taken by adding 10%
for non-response. We assumed that as this is a cross-sectional survey of diarrheal disease which is relatively a common attribute, even though high, a non-response rate of up to 15% is acceptable.

Pls operational what a no dirt floor means for the methods section

Response: We have added an operational definition of the term “Non-dirt floor” (Line 152, P. 8)

464(94.3%) of toilet facilities were improved type mainly simple and ventilated improved pit latrines. What is simple means is unclear. It is not seen in the definition.

Response: We have clarified the sentence as - “simple pit latrine with slab and superstructure, and ventilated improved pit latrines with slab, superstructure and vents” (Line 237, P.12)

N.B. we wanted to include this in the operational definitions but we have already put 11 terms and their definitions; we are simply trying to keep it concise by defining unclear terms associated with pertinent findings

Pls consider operational definition what “hand washing”. It is good to clarify if this includes soap or not: data is based on reported or observed.

Response: We have added a new operational definition of “Hand washing”. (Line 154, P.8) We have included the term “reported” to the sentence in order to clarify that hand washing at critical time was based on report of mothers and not observation: (Line 252, P 14)

The rationale of this study was that diarrheaa is high in Somali Region. Now you have 14.6% which relatively lower those other study areas as well. Pls have a relevant argument by looking at the study areas (Rural Vs Urban), latrine coverage, hand washing rates, etc. Do not speculate too much based on intentions.

Response: In order to support the finding why prevalence of diarrheaa was found to be relatively lower as compared to the findings with other study areas, we have added a sentence which is supported with findings from other studies. (Line 291, P.14)