Author’s response to reviews

Title: Prevalence of diarrhoea and associated risk factors among children under five years old in Pader District, Northern Uganda

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Author’s response to reviews:

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Dear Zhongjie Shi,

Re: Response to review comments on Manuscript ID INFD-D-19-01866

Thank you for allowing us to re-submit our manuscript entitled "Prevalence of diarrhoea and associated risk factors among children under five years old in Pader district, Northern Uganda," to BMC Infectious Diseases. We appreciate very much the constructive comments by the reviewers, which we believe have helped us to greatly improve our manuscript. Below are our point-by-point specific responses to the review comments. Other changes made are annotated in the manuscript (highlighted in red text). We sincerely hope that the revisions we have made and the accompanying responses have improved this manuscript sufficiently to be published in BMC Infectious Diseases.
Reviewer reports

Yunxia Dong (Reviewer 1):

Comment 1: It is valuable to assessed the prevalence of diarrhoea and related risk factors among children aged < 5 years in Pajule sub-county in Pader district in northern Uganda.

1. Table 1. General characteristics of the households surveyed: " &lt; 1 year " is double. Please revise it.

Response: We thank the reviewer for pointing this out. The second characteristic of the household was supposed to be “&gt; 1 year”, and this has been corrected accordingly, see Table 1 in revised manuscript page 15.

2. Some minor grammatical issues need to be considered.

Response: We have now proofread and improved the English/grammar throughout the manuscript.

Wenjing Sun (Reviewer 2):

The scientific presented in this manuscript is sound. But the novelty of the contents, the sample size, the information of the cases, and the criteria to select population is not good. Especially, there are many problems in the analysis method and writing. So I think this manuscript need to be revised in many sections.

I have some comments for this manuscript.

1. The main problem with the paper is that there is some similar study published in the other area and the sample size is relatively small…
Response: Unfortunately, the reviewer does not specify the examples of the similar study (ies) which he meant. Nonetheless, it’s true that there are similar publications on the same subject elsewhere in Uganda, some of which we have cited in our paper. The only related study we know is an MSc study by Ocamonono which was conducted in a neighbouring Agago district which we have also cited in our work (see revised manuscript page 8). However, in our humble opinion, our study is novel and justified because we conducted it in an area that is in a recovery phase from a prolonged civil conflict. We think this makes our study location unique in comparison to the other studies conducted in other areas, and presents a potentially different dynamics in terms of diarrhoeal prevalence. Several studies (e.g. Reiner Jr et al., 2018) have shown that there are geographical differences in diarrheal risks in Africa emphasizing the need to sample different areas/location. Currently, there is no published work on prevalence and risk factors of childhood diarrhea in Pader district. This information is urgently needed to guide local government planning and to ascertain the impact of control interventions. Regarding the sample size, we estimated it using Krejcie and Morgan (1970) table based on the existing household number in Pajule Subcounty (estimated at approximately 4000), which gave a sample size of 351. However, due to logistical constraints (this work was not funded) at the time of survey, we were only able to sample a total of 244 households. This clarification has now been added on LN 102-106 in the revised manuscript. Given that the households were randomly selected, we believe that our sample is representation of the studied population in Pajule subcounty. We have also reanalyzed our data and fixed most of the problems.

Comment: 2. Selection criteria for the samples should be made clearer.

Response: To improve clarity, we have revised and explained better how the samples were selected. Briefly, the sample size of households were estimated from the total number of households in the subcounty (approximated at 4000 according to Uganda Bureau of Statistics, Statistical Abstract, 2017) by using the Krejcie and Morgan (1970) Table (indicated below), which gave a sample size of 351. However, due to logistical constraints (this work was not funded) at the time of survey, we were only able to sample 244 households, which we think is representative enough. These were then proportionately distributed to the sampling units (parishes), and in each parish at least two villages were randomly selected followed again by random selection of households in each village.

Comment: 3. The statistical analysis part lacks a detailed description of the specific analysis method.

Response: We have revised and described better the statistical method used for the analysis. See revised manuscript LN 130-139.
Comment: 4. The Tables have some formatting errors, and they are not standard statistical tables.

Response: We agree with the reviewer that there were formatting errors. We have now reformatted all our tables while following the guidelines for preparation of tables as spelt out in the submission guidelines (https://bmcinfectdis.biomedcentral.com/submission-guidelines/preparing-your-manuscript) and in line with other similar published articles in BMC Infectious diseases. We believe that our tables are now standard but any additional suggestions are welcomed.

Comment: 5. The conclusion was not accordance with the results.

Response: We have now revised our conclusion in line with the results and objectives of our study; see revised manuscript LN 252-255.

Davide Fiore Bavaro, M (Reviewer 3):

In this study Authors aimed to determine the prevalence of diarrhoea and risk factors among children < 5 years old in order to planning interventions to reduce the burden of the disease in their district, Pajule sub-county (2056°23" N and 32056°38"), Uganda. Therefore, they performed a cross-sectional survey administering a semi-structured questionnaire (based on the World Health Organization guidelines) to randomly selected and proportionally distributed households with children < 5 years old in the region. It was than evaluated if the child involved in the study had suffered from diarrhoea (defined as "having three or more loose or watery bowel movements over a 24-hour period, within 14 days before). Socio-demographic, socio-economic, environmental, and behavioural factors were also collected. Finally, the associations between diarrhoea and other risk factors was explored with a proper statistical analysis.

Some revisions are needed to improve and polish this paper.

Comment 1: PERIOD OF STUDY: At page 5, line 102, Authors declared that the study was performed on February 2018, while at page 13, line 317 they declared that data was collected on April 2018. This incongruence could be confusing.
Response: We thank the reviewer for pointing out this inconsistency in manuscript. Data was actually collected in April 2018, and this has been corrected accordingly throughout the manuscript, see LN 24, LN 100 and LN 264.

Comment: PARAGRAPH "Socio-demographic and socio-economic factors associated with diarrhoea" page 7, lines 167-169:

Response: This typo has been corrected from “Socio-demograpahic” to read “socio-demographic (see LN 132), and elsewhere throughout the manuscript”.

Comment 2: a) I found an incongruence between data reported in the text and in Table 2. For instance, Authors declared that " The significant socio-economic and socio-demographic factors were: number of children below five years in a given family $\chi^2 = 8.8$, df=4, P = 0.066" while $\chi^2$ and p value reported in Table 2 are different. Similarly, also the p value of "age of caretakers" are slightly different.

Response: We thank the reviewer for this keenness. To improve clarity, we have now reanalyzed our data, more carefully and unified the statistical values both in the text and in the tables.

Comment: b) The "post-hoc" analysis showed at page 7, line 168 should be better explained in my opinion since it is not completely clear if how it is performed (e.g. 1 child vs more than 1 child; 2 children vs how many?)

Response: We reanalyzed our data and explained better the post-hoc analysis, see revised Tables 1 and 2.

Comment: P VALUE IN TEXT AND TABLES: I noticed that sometimes p value reported in the text and in table are different, as well as some $\chi^2$. I strongly suggest to revise all the number in the manuscript to avoid confusion and any incongruence.

Response: As already indicated in the response above, we have now thoroughly reanalyzed our and unified the p values in the text and the tables; see revised tables 1 and 2.

Comment: TABLE 2: Some percentages of table 2 are missing.
Response: Thank you for this observation. We have filled the missing percentages in the relevant columns in Table 2 accordingly. We have also reduced the number of tables to two.

Sincerely,

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