Author's response to reviews

Title: Maternal depression and Malnutrition in children in south west Uganda: a case control study

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Author's response to reviews: see over
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The Editor –in-Chief
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Dear Editor-in-Chief,

Please find enclosed our revised manuscript, entitled “Maternal depression and malnutrition in children in South west Uganda: a case control study” by Ashaba et al.; for publication as a Research article in BMC Public Health. In this revised manuscript, we have attempted to address all of the reviewers’ comments, as described in detail in the response to reviewers’ comments on the following pages.

As described in my cover letter accompanying our original manuscript submission, I believe that this manuscript fits very well within the scope of BMC Public Health as it covers one of the neglected causes of malnutrition in children in developing countries. We believe the study findings will be of great interest to those involved in health policies and community interventions aiming at improving maternal and child health.

To our knowledge, this is the first report showing an association between maternal depression and malnutrition in children in Uganda and Sub Saharan Africa and we believe our findings will be of particular interest to researchers focusing on maternal newborn and child health. The authors confirm that this manuscript has not been published elsewhere and is not under consideration by another journal and all have approved the manuscript and agree with its resubmission to BioMed Central, BMC Public Health.

Sincerely

Scholastic Ashaba
Response to reviewer comments for:
Title: Maternal depression and malnutrition in children in south west Uganda: a case control study.

Authors: Scholastic Ashaba, Godfrey Zari Rukundo, Florence Beinempaka, Moses Ntaro and John Leblanc
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We thank the reviewers for their interest in our manuscript, and for all their helpful comments. Provided below is a point-by-point response describing our attempts to address and incorporate all of their requested revisions in our manuscript.

Reviewer #1
Major Compulsory Revision #1
We agree with the reviewer that although the posed question was well justified it was compromised by methodological explanations that were included in our main goal. We have revised and stated our main goal clearly as and the explanations pertaining to the methodology have been included in the methodology section.

Major Compulsory Revision #2
The reviewer pointed out that we had not described the details of a case control study most especially concerning the inclusion and the exclusion criteria. In response to this question we have revised the selection criteria for both children and their mothers. The general criteria for children included age between 1 and 5 years, being admitted in hospital, having their mothers as the main caretakers and if mothers consented to participate in the study. In addition to the above general criteria cases were defined as children who were malnourished defined as z-scores of below -3SD of weight for age, weight for age and weight for height according to WHO child growth standards and having no other physical illness. Case exclusion criteria included malnourished children with other physical illness identified through investigations while in hospital, children below 1 year of age and children whose caretakers while in hospital were not their mothers. Control inclusion criteria was a chronic illness but normal nutritional status. Control exclusion was if the mother did not consent to participate in the study. Mothers were included in the study if they had a malnourished child admitted in the hospital and were aged 18 years and above. Inclusion criteria for control mothers were having a child with a chronic physical illness admitted in hospital but normal nutritional status and the child matched a case according to age and gender.

Major compulsory Revision #3
We agree with the reviewer that our analysis model was not clear. We have therefore repeated the analysis model and reviewed the relationship between the dependent and independent variables. We initially run a bivariate logistic regression model for each of the variables to determine their relationship with malnutrition in children. Each of the variable was run in the model against malnutrition in children. Odds Ratios (ORs) for each of the variables were recorded generating a bivariate logistic regression model table.
(Table3). The variables that were associated with malnutrition were then run into a multivariable model to determine if the association remained hence generating a multivariable logistic regression model table with adjusted Odds Ratios showing a significant association between maternal depression and malnutrition in children after adjusting for maternal level of education and source of income. (Table 4). Our analysis model did not include controlling for confounding factors as previously stated in the manuscript.

**Major Compulsory Revision #3**
We agree with the reviewer about the figures previously reported within the measures of malnutrition and we have done the correct analysis which gave us the right figures. The malnourished children were in the cases group and children in the control group all had normal nutritional status. Further analysis within the cases to determine measures of malnutrition indicated 74.7% of the malnourished children were stunted (low height for age), 83.7% were wasted (low weight for height) while 86.7% were underweight (low weight for age).

**Major compulsory Revision #4**
We reviewed the analysis model by initially using bivariate logistic regression analysis for each of the variables and indicating the non-adjusted Odds ratios for each of the variables. The variables that showed an association with malnutrition were then in a multivariable logistic regression model generating adjusted Odds Ratios. This gave us the correct values of Odds Ratios for the association between maternal depression and malnutrition in children where by the non-adjusted Odds Ratio is 2.38 (1.18-4.79) while the adjusted Odds Ratio is 2.23(1.08-1.89).

**Minor essential Revision #1**
The quality of typing was revised removing unnecessary spaces between words and we tried as much as possible to avoid parenthesis.

**Minor essential Revision #2**
All the tables were revised, table titles have been included and we have indicated clearly that we used proportions rather than frequencies. The tables are now open with no vertical lines on either sided and we have removed inside vertical lines as well.

**Reviewer #2**
**Major Compulsory Revision #1**
We have clearly stated our main goal in line with our research question removing the description of the instruments used in this section which has been placed in the methods section.

**Major compulsory revision #2**
The methods section has been revised describing the inclusion and exclusion criteria for both cases and controls. We have stated clearly that cases were malnourished children without any other physical illnesses while controls were children with other chronic illnesses but with normal nutritional status. All children had to be admitted in hospital and they were matched for age and gender. Their caretaker in hospital had to be the mother who provided informed consent to participate in the study. Malnutrition in children was defined by low weight for age (underweight), low height for age (stunting) and low weight for height (wasting) according to WHO growth standards. Inclusion criteria for the mothers was having a child admitted in hospital, being 18 years and
above while the inclusion criteria for the controls was the children with any other chronic condition but with normal nutrition status. The mothers of controls also had to be 18 years and above and consented to participate in the study.

**Major Compulsory revision #3**

The analysis model has been revised providing appropriate results. 50% of the participants were malnourished children (cases) and 50% were controls who had a chronic medical condition but with normal nutritional status. Within the cases (malnourished children) 74.7% of the children were stunted (low height for age), 83.7% were wasted (low weight for height) while 86.7% were underweight (low weight for age). These percentages do not include controls since these had normal nutritional status.

**Major Compulsory Revision #4**

We revised our analysis model. Cross tabulation and logistic regression analysis was done resulting in 4 different tables. The tables have been much improved with complete titles and capital letters in the right places. The table titles include all details concerning the content of the tables.

**Major compulsory Revision #5**

We have revised our discussion keeping it in line with the main of the study, removing unrelated information that was not a focus of this study. With the help of the statistician we revised our analysis by running both bivariate and multivariable logistic regression models. The analysis gave a non-adjusted Odds Ratio for the association between maternal depression and malnutrition in children of 2.38(1.18-4.79) and the adjusted Odds Ratio of 2.23(1.08-1.89)

**Minor Compulsory Revision #1**

We revised our title and removed unnecessary capital letters. The abstract was revised and grammatical errors have been eliminated.

**Minor compulsory revision #2**

We edited the whole manuscript and used an independent person whose native language is English and with long term experience in writing who helped us with further editing to make our writing acceptable and worthy of publication. Through the process of editing and proof reading grammatical errors were eliminated. References were revised, a reference manager was used to avoid duplication of references.