Author’s response to reviews

Title: Association of low birth weight with undernutrition in preschool-aged children in Malawi

Authors:

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Author’s response to reviews:

Reviewer #1

Major comments:

Comment 1. Does the survey include any information on feeding practices? Potential confounding by breastfeeding, for instance, is not addressed.

Answer. Thank you for the positive suggestion, indeed the survey had information on feeding practices. However, we could not include such indicators since most those indicators are age specific. Thus, such indicators were omitted so as to avoid having small sample size. For instance, the Indicators for assessing infant and young child feeding practices proposed by the UNICEF and WHO stated that (1) early initiation of breastfeeding is a proportion of children born in the last 24 months who were put to the breast within one hour of birth. (2) Exclusive breastfeeding under 6 months is proportion of infants 0 –5 months of age who are fed exclusively with breast milk. (3) Continued breastfeeding at 1 year is proportion of children 12–15 months of age who are (4) Introduction of solid, semi-solid or soft foods as a proportion of infants 6 –8 months of age who receive solid, semi-solid or soft foods. (5) Minimum dietary diversity a proportion of children 6 –23 months of age who receive foods from 4 or more food groups. (6) Minimum meal frequency as a proportion of breastfed and non-breastfed children 6 –23 months of age who receive solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more. But this study the indicator was children aged 0–59 months who were undernourished. However, we controlled the feeding practices by included variables such as maternal body mass index and age of the child. It is believed that women who are underweight are more likely to have a poor health and ill hence cannot breastfeed their babies. Furthermore, underweight mothers’ lactation capacity may be limited as a result of their poor nutrition. Also higher proportion of underweight mothers may
live in poor socioeconomic conditions and their children may be deprived of proper weaning foods and essential primary health care facilities, both of which contribute to poor nutrition. On the other hand, research has found that overweight/obese women are associated with significantly lower rates of breastfeeding initiation, duration and exclusivity. Other researcher also reported that age of the child is highly correlated with breastfeeding.

Comment 2. Table 2 could be clearer. Instead of (or in addition to) listing all covariates in the footnote, each row should be labeled based on its model.

Answer. Thank you for your suggestion, Table 2 has been split into 3 Tables (namely table 2, 3, and 4), and re-analyzed using hierarch regression for respective domain.

Comment 3. Definitions for stunted, wasted, and underweight should be moved from the methods to the introduction.

Answer. Thank you for your suggestion, since it’s the variable measurement I feel it should be still there in the methods section.

Minor comment:

Comment 4. The manuscript includes some colloquial language (e.g. "huge sample size") that should be edited.

Answer. Thank you, the manuscript has been edited for the grammatical and syntax errors.
Reviewer #2

Abstract:

In methods section:

Comment 1. The multivariate logistic regression models using surveylogistic were performed while controlling for six different models. "I think it would be better to write, the multivariate logistic regression models using surveylogistic were performed while controlling various confounding factors in six different models.

Answer. As suggested, the sentence has been phrased and edited accordingly. Page 2, line 41–42.

Background:

As such, babies who had experienced intrauterine growth retardation (IUGR) in utero…
After intrauterine growth retardation (IUGR) writing in utero is unnecessary - since it is intrauterine growth retardation.

Answer. Thank you, as suggested, the word has been removed.

Methods:

Comment 3. In demographic data you stated that 24562 women responded your survey but after the inclusion and exclusion section we see that you only analyzed 4047 children. You have lost nearly 20000 children in the analysis because of your inclusion and exclusion criteria. Thus, 1- Please explain your inclusion and exclusion criteria in detail; 2- Add how many child you exclude in detail (for ex, the ones who didn't have birth weight were …. Children); 3-As a
strength you stated that this is a nationally representative dataset but after excluding that much of cases, can you explain where do you know that 4047 children still represent your whole country? You excluded the ones who didn't have a birth weight - could they be from more deprived areas?

Answer. Thank you for giving me an opportunity to explain the inclusion and exclusion criteria in detail. Firstly, in the 2015-16 MDHS, a total of 27,516 households were selected for the sample, of which 26,564 were occupied. Of the occupied households, 26,361 were successfully interviewed, for a response rate of 99%. Secondly, in the interviewed households, 25,146 eligible women were identified for individual interviews. However, interviews were completed with 24,562 women, for a response rate of 98%. Furthermore, the 2015-16 MDHS measured the weight and height of children under age 5 in a subsample of one-third of households, regardless of whether their mothers were interviewed in the survey. A total of 6,033 children under age 5 were eligible for height and weight measurements. The analysis of height-for-age indices includes 94% of eligible children with complete and valid height measurement and age data. Analysis of weight-for-height indices includes 95% of eligible children with complete and valid height and weight measurements. Analysis of weight-for-age indices includes 96% of eligible children with complete and valid weight measurement and age data. Thus, the final sample analyzed by the MDHS was 5,786. However, this study restricted analysis to children aged 6-59 months hence the sample size could not be the same as 5,786. Page 6, line 121–125 and line 129–136.

Study variables

Comment 4. "Amount of media exposure (0/1/2/3)." Please define this variable in detail - are you asking types of media (Tv, radio, computer etc.) or hours that spent on media (0/1/2/3 hours?).

Answer. Thank you, the variable was composed from free domains i.e. frequency of reading a newspaper, watching television or listening to radio at once a week. The MDHS asked respondents the following questions; (1) Do you read a newspaper or magazine at least once a week, less than once a week or not at all? (2) Do you listen to the radio at least once a week, less than once a week or not at all? And (3) Do you watch television at least once a week, less than once a week or not at all? Then, the amount of media exposure was calculated by summing up the reported frequency of each media item was performed at least once a week. Page 9, line 197–208.
A general recommendation;

Comment 5. Even though you clearly stated your objective as the association of LBW on malnutrition - after controlling some confounding factors- I would also be happy to see the effect of mother's education or obesity status on this association. You may consider putting a table with all the significant variables as a supplementary file. If you did, I could not reach to the supplementary file - I am sorry if I wrote it the second time.

Answer. Thank you for the positive suggestion, the analysis has been performed again. And each domain (the outcome variable) has been presented with detailed models and variables in each domain. Please refer tables 2, 3, and 4.

Associate editor:

Introduction

Comment 1. Sentence commencing “Even though a number of studies classified LWB as a potential risk factor…..” Remove the word “however” after [23-25]. Please also replace the word “main” with the word “primary” and remove the words “of importance”.

Answer. Thank you for the suggestion, the sentence has been corrected.

Comment 2. Sentence commencing “Given that a certain fraction…” What is this fraction? Please include a proportion if possible.

Answer. Thank you for the suggestion, the fraction has been added
Comment 3. The research objective is too vague at the moment. Please reword to describe exactly what the objective of this study was i.e. to establish an association between ….

Answer. Thank you for the suggestion, the objective has been revised accordingly. Page 5, 107.

Methods

Comment 4. Sentence “…the MDHS was designed to yield a nationally representative sample at the national level…..” This doesn’t make sense. I think there might be a parenthesis missing and maybe a comma as well? Please reword.

Answer. The phrase has been revised and corrected. Page 6, line 114–116.

Comment 5. The authors state that in the MDHS some preschool children had their height and weight measured even if their mother was not interviewed. Please could the authors confirm that their study only included data on children whose mothers were interviewed and if this is the case please make this really clear in the inclusion/exclusion section?

Answer. Thank, the inclusion and exclusion criteria has been revised according. Page 7, line 147–148.

Comment 6. Sentence commencing “All children who did not have a valid birth weight recorded in their health cards…..” Please replace the word “weighted” with “weighed” please include the word “and” before the words “whose delivery”

Answer. As suggested, the sentence has been revised.

Comment 7. Sentence commencing “Maternal factors include…..” The word “Maternal” before body mass index does not need to start with a capital letter (and in fact the authors can remove
the word maternal as they’ve already told the reader that they are listing the maternal factors so
the word doesn’t need to be repeated).

Answer. Thank you, as suggested, the sentence has been revised.

Comment 8. The variable regarding distance to health facility (no big problem/big problem)
needs much more description. Is this the women’s perception of how much of a problem it is – in
which case it needs to be referred to as “perceived problem” throughout the manuscript. Was it
assessed as ‘no big problem versus big problem’ or have the authors aggregated this variable into
2 groups. Also the English language is poor as the authors have not quantified what ‘big’ is…
once this is described better than the variable options can be renamed e.g. ‘perceived problem’ vs
‘not perceived to be a problem’ (or similar).

Answer. Thank you, the variable has been revised accordingly. Page 9, line 193–194.

Comment 9. I think Figure 1 would be better as an online supplementary file.

Answer. Thank you, as suggested, Figure 1 has been assign as an online supplement.

Results

Comment 10. Replace “… (90%) had born…” with “(90%) were born” “As regards” is incorrect
please replace with “With regards to” this needs to be done throughout the manuscript.

Answer. The sentence has been revised accordingly.

Comment 11. Sentence commencing “Similarly a majority of participants…” Please state what
the proportion was same comment as above regarding the reporting of “59% had big
problems…” Once this wording is amended in the methods please be sure to correct it
throughout the manuscript “…a majority of respondents were the southern region (46%)” Please remove the word “the” from this sentence and also 46% is not a majority, it has be >50% to constitute a majority, therefore please reword.

Answer. Thank you, as suggested, the whole manuscript has been revised accordingly.

Comment 12. In the paragraph beginning “Table 2 presents…” please could the authors place the results in parentheses after the stated result e.g. “…those with LBW had increased odds of being stunted (Crude odds ratio…), of being underweight (CrOR…) and of being wasted (CrOR…” and the authors can remove the word “respectively” from this sentence.

Answer. Thank you. As suggested. The paragraph has been revised.

Discussion

Comment 13. Please remove the words “a” and “fact” from the first sentence

Answer. Thank you. As suggested. The words “a” and “fact” have been deleted.

Comment 14. Please remove the word “very” form the sentence “…study has revealed a very strong positive association…” the word “very” is subjective.

Answer. Thank you. As suggested. The words “very” has been deleted.

Comment 15. To refer to “children who are products of LBW…” is poor English. Please instead refer to “children who have a LBW” rather than saying that “children who have LBW have a predisposition…” please reword to say “children who have LBW are at increased risk to remain undernourished…”
Answer. Thank you. As suggested. The sentence has been revised.

Comment 16. Please include the word “are” in the sentence “…children with perceived small sizes at birth ARE often born…” Please replace the words “might probably be mediated…” with “may be mediated”

Answer. Thank you. As suggested. The word “are” has been added.

Comment 17. Sentence commencing “It was well documented that malnutrition is the major cause of the immunodeficiency…” Please reword to the following “It is well documented that malnutrition is a major cause of immunodeficiency…”

Answer. Thank you. As suggested. The sentence has been revised.

Comment 18. There is no need to make the acronym (VLBW) for very low birth weight, as the authors only mention this once and therefore the acronym is not used.

Answer. Thank you. As suggested. The acronym has been removed.

Comment 19. Please replace the word “huge sample size” with “good sample size”

Answer. The word has been corrected.

Comment 20 “Thus, the nutrition events throughout the life cycle should not be looked down” This sentence makes no sense. Please reword.

Answer. The sentence has been revised.
Conclusion

Comment 21. Reword sentence “, despite numerous intervention are being implemented” to “, despite numerous interventions that are being implemented”.

Answer. As suggested the sentence has been revised