Author’s response to reviews

Title: Maternal undernutrition as proxy indicators of their offspring's undernutrition: Evidence from 2011 Ethiopia Demographic and Health Survey

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Author’s response to reviews:

Reviewer comments

Title: Maternal undernutrition (measured by height, weight and BMI) as proxy of their offspring’s undernutrition: Evidence from 2011 Ethiopia Demographic and Health Survey

Date:

Reviewer: Cecilie Svanes

Reviewer’s Comments

Author’s Revision and Response

Introduction

The introduction seems illogical - first suggesting that maternal undernutrition is an important predictor of offspring nutritional status, then suggesting that this is not well investigated and therefore we need this study. I suggest starting with the importance of assessing child undernutrition, and the need for simple assessment methods, and thereafter introduce the possible potential to use maternal measurements. The aim of study could be extended to include exploring (1) maternal predictors of child undernutrition, in addition to (2) whether maternal BMI/height/weight can be used to assess child undernutrition. The results adequately address both these topics.

We have done a major overdo on this section and started by the importance of assessing child undernutrition and why we need simple assessments. Then we have introduced the potential use of maternal BMI/weight/height.
The aim of the study was also extended and included predictors of child undernutrition.

Terminology

I suggest to state directly "maternal BMI/height/weight" rather than "maternal undernutrition" - probably the measurements only partly reflect true maternal undernutrition?

We have used maternal BMI/height/weight consistently throughout the manuscript instead of maternal undernutrition.

Interpretation

How well does maternal BMI and height/weight reflect maternal undernutrition? This needs to be discussed.

Additional paragraphs added in the discussion section.

The paper clearly states that the results are mainly negative. The discussion (and abstract-results) of subgroups in which maternal measures better predict offspring undernutrition, could be less extensive of the subgroups that still give weak findings.

We have removed the discussion of the subgroups in both sections.

The discussion of methodological considerations could better address potential effects of selection of the cohort - how can restriction of the study population have influenced the results?

Discussed as limitation in the discussion section

Editorial

Tables 1-4 are placed at the end of the manuscript while tables 5-6 are embedded in the text.

All the tables embedded in the text.

Abstract, Background, is missing some of the text

The missing text added

The language is somewhat colloquial, and needs some revision.

Language edited
Reviewer: Chittur S Srinivasan

Reviewer’s Comments

Author’s Revision and Response

While maternal undernutrition can be an important determinant of (or strongly associated with) child undernutrition, I am not convinced of the underlying premise of the paper that (1) maternal undernutrition can be a reliable predictor of child undernutrition and (2) it would be useful to develop maternal undernutrition as a "screening tool" for child undernutrition.

1. As you have mentioned, maternal undernutrition is an important determinant of child undernutrition and there are so many evidences supporting this including lancet series on maternal and child nutrition. As a result, this served as starting point of our hypothesis; given the strong association and controlling for other factors can maternal BMI, height and weight be accurate predictor of her child undernutrition?

2. And can it be used be to make inferences about their children. Why?

   • Child undernutrition is usually used to infer the nutrition of the entire population in humanitarian/emergency settings.

   • The indicators used to measure child undernutrition are multicomponent, i.e. weight for age, height for age, weight for height. In setting like Ethiopia particularly in rural where rural areas where home delivery is common it is difficult to ascertain ages accurately and these indicators are sensitive to random errors in ages.

   • Second, younger children are difficult to measure in many instances it results in error. According to the WHO guideline at least two persons are required to measure weight and height accurately. And in setting like Ethiopia where health workers are scarce it may be difficult to undertake these measurements accurately.

   • Therefore, maternal BMI, height and weight which is much simpler to measure and independent of age could be a potential measure of nutritional status of their offspring and could replace child nutritional indicators that is usually used to infer nutritional status of entire population particularly in humanitarian/emergency settings.

If maternal nutrition is not a good predictor of child nutritional outcomes, it cannot be inferred (as the authors appear to have done) that the intergenerational cycle of malnutrition is not an important issue to be addressed in developing countries. We modified our conclusion as follows:

“Maternal height and BMI are significantly associated with child’s undernutrition but not accurate proxy indicators of child undernutrition. Therefore, our findings question the
assumptions underlying uses of anthropometry particularly we doubt the use of children nutrition indicators as proxies for population level nutrition”.

Editor’s Comments

Author’s Revision and Response

Please look carefully into the reviews and also discuss your findings in line with the causal inference framework (see Hernán MA, Robins JM. Causal Inference. Chapman & Hall/CRC (internet version under revision http://www.hsph.harvard.edu/miguel-hernan/causal-inference-book/); 2013/8, see particularly section one of the book/chapter 1-10). Consider modifying analyses or providing additional analyses based on the causal inference framework and also discuss limitations based on this. Please also look carefully into the conclusion with this in mind.

We added logistics regression for binary outcomes in the analysis part. Conclusion modified and limitations discussed.