Reviewer’s report

Title: Stunting and anemia among children 6-23 months old in Damot Sore District, Southern Ethiopia

Version: 1 Date: 04 Oct 2018

Reviewer: Ofelia Saniel

Reviewer's report:

The results of the study are interesting. However, I have several concerns below:

1. You refer to the independent variables as 'predictors' of stunting and 'predictors' of anemia. However, the your analysis and interpretation is that of the association of several independent variables with either stunting or anemia. If your interest was to predict the occurrence of the outcomes, I was looking for 'r-square' in your analysis to explain how well the data fits the model. Unfortunately, I did not see r-square values presented in your paper.

2. Although the analysis for prediction and for association will essentially be the same, the analysis of predictor variables would necessitate 'testing' the fitted regression line with a fresh set of data to see if indeed the prediction is good. However, based on your discussion, I think your interest is to determine the association of the independent variables with the outcome/s.

3. I also have concerns about the temporal relationship between anemia and stunting. I understand that stunting is the result of long-term or chronic malnutrition. Thus, anemia (or the hemoglobin status) could affect height over a long period of time especially if anemia is a chronic problem. However, stunting cannot affect current anemia status, which is the one you measured, although stunted children would likely be also anemic. In other words, LAZ cannot be a predictor of anemia; they are most likely associated in cross-sectional studies.

4. I am not sure if you did stratified analysis before you did the multivariate analysis. It will be good to see how the associations of interest behave when strong confounders are controlled for in the analysis using stratified analysis.

5. Many independent variables were investigated in the study --- 19 for stunting and 19 for anemia. However, the authors failed to mention what variables were included in the full models before the final models (Tables 4 and 5) were obtained. At this point, I can only guess that the variables that were included in the full model were those which had p values less than 0.25 as explained in the report. Even if this is so, it will be good to explain what the full models contained (at the bottom of Tables 4 & 5) to help the readers understand better.
6. I also have concerns about the definition and categories of introduction of complementary feeding -- in Table 1, the categories are 'earlier than 6 months' and 'just at 6 months' and the total is 477. This does not coincide with the categories in Table 2 which shows categories of 'before or after 6 months' versus 'at 6 months' and the total is also 477. It will be difficult to conclude what is the optimal time to give complementary feeding if the analysis includes a mix of children who were given CF before 6 months and those given CF after 6 months. This also goes against the desired practice of initiating CF at 6 months for mothers who exclusively breastfeed up to 6 months.

7. Some typographical errors need to be corrected. For instance, the age of the child cannot be 13.19 years. Although the text says anemia 6 months status is categorized as mild, moderate and severe, Table 3 only shows two categories -- anemic and not anemic.

8. Finally, the sample size computed was 498 but only 477 were included in the analysis. It will be good to explain the reasons for non-participation so that possible selection biases could assessed by the readers.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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I recommend additional statistical review

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