Author’s response to reviews

Title: Nutritional Status and Associated Factors Among High School Adolescents in Debre Tabor Town, South Gondar Zone, Northcentral Ethiopia

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Response Letter to Reviewer

Title: Nutritional Status and Associated Factors Among High School Adolescents in Debre Tabor Town, South Gondar Zone, Northcentral Ethiopia

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we are very grateful for the lesson that you give to us through your comments and questions. we strongly believed that the entire comments rose by the reviewers will improve the quality of the manuscript. We have addressed all the issues raised by the reviewers in a point-by-point response and we supposed that the revised version of the manuscript is satisfactory and meet the journal publication requirements. We have updated the manuscript and resubmitted with the track changes to show clearly the change we have made. The Authors try to answer all questions and issues raised by the editorial team and reviewers. Please note that words and sentences
highlighted by red color are the questions and comments raised by the reviewers and the one highlighted by green is our response to each question.

Kind regards!

Authors

Review Comments to the Author

Reviewer reports:

→ Sally Mackay (Reviewer 1): It is important to public cross-sectional data on nutrition status as it will be useful to other researchers. The current paper needs some minor revisions to improve the English. There needs to be more information on some aspects of the methods (24-hour recall). The conclusion in the abstract and the overall conclusion do not meet the results and discussion. More thought needs to be provided as to how the factors affecting stunting and thinness can be addressed.

• Still, we try to improve the language issues and thank you for your comment.

• A 24-hour dietary recall is recorded by using a list of food items with an example which is recommended for children. Then each response was recorded as 0 = No and 1 = Yes. Then we were adding the score and categorized as good (more than 4 food group) and the rest poor out of 8 food groups as stated in the operational definition with citation. The list of food groups was the following:

1. Grains, roots or tubers
2. Vitamin A-rich plant foods
3. Other fruits or vegetables
4. Meat, poultry, fish, seafood
5. Eggs
6. Pulses/legumes/nuts
7. Milk and milk products
8. Foods cooked in oil/fat

- We will try to improve based on the comment regarding conclusion and recommendation

→ Abstract
Line 40, 41: Spell p-value consistently
Corrected accordingly

Conclusion: The first two sentences of the conclusion are a repeat of the last two sentences of the results without the statistics. The conclusion needs to provide some interpretation of the results - what does this mean? Are counselling and education sufficient to prevent stunting or thinness or are there other factors such as lack of access, availability and affordability of food that can affect nutrition status? The conclusion needs to be rewritten.

- we try to revise as per the comment. Thinness and wasting will be considered as a public health problem if the over-prevalence is >5% in a certain target group as per WHO classification. So, we try to show the magnitude by further classifying this magnitude as no, mild, moderate and severe public health problem. We didn't believe that education and counseling will not avoid all this problem but it is very important to change the eating behavior. Because at this age dietary habit will be influenced by different factors like peer influences. The main issue here is, the student lives away from their family to attain their education. And none of them did not report lack of foods. And also, we didn't assess the quality and quantity of foods.

Background: The background could be reduced in words by writing more concisely.

57: As reported
58: accounts for 18%
68: diseases
69: are a nutritionally
70: But the progress to minimise malnutrition
92,93: revealed a prevalence of 20.2% etc
93-95: It is not clear what the sentence means, please rewrite
• all the above issues were corrected accordingly and we tried to minimize the background as per the comment.

Methods:

107: Delete 'far'

Corrected

Is all the detail about the town required?

We reduced some words which we believed they are less important and thank you for the comments.

120: Instead of 'attending their education' write 'attending high school'

Corrected accordingly

138, 139: Do you mean a health condition related to socio-demographic status, or were these two indicators?

They were two different indicators and corrected. Really thank you for the comment that seems simple but can bring a meaning difference.

144: materials and equipment were always checked

146: delete 'faced'

Corrected accordingly

Please provide more information on the 24-hour recall in the methods.

We have added this in the methods section and thanks for the comments. Also, try to see the detail from the above comments.

150: obtain

151, 152: After the pretest, corrections were made to the questionnaire.

153: Do you mean 'tapes’?

154: replace done with written

All the above points are corrected accordingly

160: In the article sometimes, thinness is used and sometimes wasting. Use only one of these terms when possible
Corrected. We used thinness throughout the article.

163: Name the four food groups

It is not about the four food groups. It is about the number of food items that an individual consumes in the last 24 hours is more than 4 food items or not from Food and Nutrition Technical Assistance (FANTA) food groups. The food groups are grains/roots/tubers, vitamin-A-rich plant foods, other vegetables & fruits, meat/poultry/fish/seafood, eggs, pulses/legumes/nuts, milk and milk products, foods cooked in oil/fats.

172" replace saw with see

Corrected

Results:

Why did you only recruit students in the late age groups when the introduction discussed a wider age range.

This is not because we recruited all the students from late age groups but all most all students in high school are in this age group. To explain it a bit more, if those students start school at the age of 6 or 7, the minimum age that they can be high school student (grade 9 & 10) will be 15, which is a late adolescent age group. This is what really happened in our study while our intention from the beginning was to address both early and late adolescent age groups.

190: Try not to use 'them' - state what you mean, e.g. participants. Define 'teff'

Corrected.

195: Report height and weight separately for males and females

It has been rewritten accordingly.

199: is risk the right word? Just say that none of the participants were classified as overweight or obese

201: participants, not them

208: Aren't all the participants late age?

- Corrected accordingly and thank you for the comments.

Discussion

243: serious, not series

265: Difference not deference
271: field, not filed
Corrected accordingly.

278: Do you mean there is insufficient food for the household. If there is enough available food then why would be sharing compromise adequate intake. Or do adolescents get less of a share. Further explanation is required.

Yes, this is about households which have large family members with low socioeconomic status and insufficient food. So, sharing food when the household has insufficient food will compromise the adequate intake of food at an individual's level. Of course, we rewrite like this and thank you for the questions and comments.

283: Is a study from India relevant?

We think so because even though there may be socioeconomic differences both Ethiopia and India are developing countries and mainly their economy based on agriculture. But if you think it is irrelevant, we can remove it

286-290: This sentence is long and not clear. Rewrite so the key points are obvious

We tried to make it short and concise. Thank you!!!

293: Are adolescents who live away from their families more likely to be rural? Explain more about the monthly ration or subsistence

Yes, adolescents who were living away from their families are rural. Those students took their subsistence for a month or even a semester. In between, they faced a food shortage. In addition, they are from rural families who have poor awareness of feeding practices and nutritional requirements for their children. This causes an inadequate intake of food both in quantity and quality.

Conclusion

This statement is not in the discussion. How do you know if they are already receiving education or counselling? If lack of food is the issue or living away from home how will they overcome this? The discussion needs to focus on how the study results that can be used to prevent stunting and thinness drawing on evidence-based interventions. The conclusion needs to match the discussion.

we tried to revise it as per the comment

Abbreviations:
307: Was MUAC reported in the study?
No, we removed it from the abbreviations list.

339: Replace made with wrote
Done.

References

Please check the references thoroughly as there are some inconsistencies in formatting. Check that the journal name is on the reference and that websites have 'available from' The last two references seem to be missing information.

Thank you, revised by using the citation manager

Tables: It would be interesting to have the dietary diversity results. Can these be added to table 1.
Sure, why not.

Rachel Krause, Ph.D. (Reviewer 2):

The authors have done well in identifying the need for further research into a vulnerable time of development, adolescence, which tends to be overshadowed by work in fetal and young child development; however, current research identifies adolescence as a potentially significant period for catch-up growth, and therefore I find value in the authors' efforts in this study.

Thank you for encouraging our work and your effort to improve the quality of the article through questions and comments.

That said, there are revisions that need to be made in order for the value of this work to be fully realized.

Throughout, the writing needs to be significantly edited to improve clarity for the reader.

Still, we are working on it and thank you for the comments.

The abstract is far too long, and does not include key information about the variables tested. For example, giving adjusted odds ratios for sex does not indicate whether specifically being female (or male) is associated with greater odds of negative nutritional status.

We revised it!
There are discrepancies throughout about whether or not previous studies on nutritional status in Ethiopia exists, in adolescents or other populations - e.g. lines 81, 96-97, 244, 247-250268, etc. A clearer discussion of the existing literature is needed.

From the above-mentioned lines of the manuscript, we have discussed that previous studies in Ethiopia didn't show the nutritional status of adolescents at the country (national) level. But there are some studies at the local level of which some of them are mentioned in the introduction and compared to our finding in the discussion part. Ethiopia is a home of peoples with different sociocultural, religious, ethnic and nutritional backgrounds. So, we believed that there would be a difference in the nutritional status of adolescents in our study area from other parts of the country and the country needs studies on nutritional status of adolescents at the national level.

The purpose of the study needs to be better identified in the introduction of the paper (lines 100-102) - presumably there are lessons from this study that can be applied elsewhere regarding the types of factors that put adolescents at particular risk of undernutrition, and these should be identified for the reader.

It is rewritten and thanks to you for the comments.

Different types of malnutrition need to be better defined (e.g. lines 90-91). In particular, the authors have not discussed the differences between long-term, chronic undernutrition (typically resulting in stunting) versus shorter-term, more acute undernutrition (typically resulting in underweight), even though they have chosen to include both measures. These different measurements point to different types of risks for undernutrition and should be discussed, in both the introduction (in justifying their use) and discussion (in understanding the results from the logistic regression models).

We have discussed long term (chronic) undernutrition typically stunting versus short term (acute) undernutrition typically wasting (thinness) in our study. Underweight is a mixed type of undernutrition mostly used for growth monitoring purpose after an intervention.

Recruitment procedures and informed consent are discussed in the accompanying information about the manuscript (lines 316-328); this may be a preference of the journal; however, it would be preferable from the perspective of the reader to have these directly in the text, in the methods section of the manuscript.

It was initially in the method section. But we are told to bring it immediately after the declaration section so that the manuscript conforms to the journal style.

The methods section of the paper should state more explicitly what was asked in the questionnaires (lines 138-139). The authors only say that "relevant information" was collected on a variety of topics, but not what was considered "relevant." This would help the readers to understand what later was determined to not be associated with stunting and underweight, as
well as to clarify what was actually collected (for example, "dietary conditions" is a meaningless term to the reader on its own). The specific measurements taken for anthropometry should also be explicitly stated, rather than "required anthropometry."

We tried to use rather more distinct words to avoid vagueness for readers and thank you so much for the comments.

The statistical analysis described in the methods should explicitly state which variables were initially entered into the models. Some of this information is given in the results section (lines 215-219, 228-232) - this should be moved into the methods section of the manuscript. There also needs to be further explanation of the use of the Hosmer-Lemeshow goodness of fit test, including why this particular test was chosen and how results from this test were interpreted (lines 179-180).

• It is corrected accordingly.

• The Hosmer-Lemeshow goodness of fit test was performed to see how the variables in the model explained the dependent variables. This is a common test under logistic regression and we may say that the constructed model is good if the p-value is greater than 60% (0.60). if the p-value was closer to one, the selected variables under the model were explaining very well. So, we revise this section by including the P value for stunting and thinness.

The results reporting basic descriptive data about the height and weight of participants should be reported by sex (line 195).

Corrected accordingly

Figures 1 and 2 are unnecessary.

It is removed.

The interpretation of adjusted odds ratios is incorrect. For example, a variable with an AOR of 2.4 cannot be simply interpreted as leading to a 2 times greater likelihood of a given outcome. The authors need to rethink how they are discussing these results in the text (e.g. lines 219, 221, 223, 233, 236).

Corrected accordingly

The discussion section needs to be further developed, taking into account the different processes that result in growth stunting versus low BMI, and incorporating further references to back up some of their explanations. There also needs to be a discussion of potential shortcomings or weaknesses of the study design, particularly with regards to the directions of different relationships.

Revised accordingly