Author's response to reviews

Title: Prevalence and associated factors of Goiter among rural children aged 6-12 years old, Northwest Ethiopia, Cross-sectional Study

Authors:

Molla W Mesele (molmesele@gmail.com)
Getu A Degu (adgetu123@yahoo.com)
Haimanot Gebrehiwot (haminot_ghiwot@yahoo.com)

Version: 3 Date: 6 January 2014

Author's response to reviews: see over
Point by point response to reviewer for version 2

Title: Prevalence and associated factors of goiter among rural children age 6-12 Years old, Northwest Ethiopia, and Community Based Cross Sectional Study

Response to Version: 2     Date: January 5, 2014     Reviewer: Afework Mulugeta

A. over all Reviewer’s comment
1. Overall comments: This study presents data on the prevalence of goiter and its associated factors in 6 – 12 years old children from Lay Armachiho district, Northwest Ethiopia. Although the data set is a reasonable size and the study contains useful information on the severity of chronic iodine deficiency, it falls short of providing evidence of current iodine deficiency in the study communities. The authors need to provide strong justification of their deviation from using all the recommended quantifiable indicators for assessment of IDD, as recommended by the joint WHO/UNICEF/ICCIDD consultation.

Response to reviewer’s over all comment

As clinical examination of thyroid gland using the standard method is one of the many approaches recommended by the joint WHO / UNICEF / ICCIDD consultation, it has been considered in the present study. However, The UIE method and TSH are costly and in accessible in poor settings like Ethiopia. See 12th paragraph in background section. Hence, this study mainly aimed to see the existence of chronic iodine deficiency in the study area. It is clear that clinical examination of thyroid can show the severity of IDD in school age children. Moreover, the authors agree estimation of Urinary Iodine Excretion (UIE) levels from causal urine samples using standard laboratory technique is the best method to assess the recent Iodine nurture status of children. But the authors fail to do that because of lack of well equipped and standard nutrition laboratory to perform UIE. Authors try to see the recent iodine intake by observing Iodine content of salt samples from households by using rapid test kits. The finding of this survey will be used as an evidence for the existence of the IDD in the study area and base for subsequent studies using other quantifiable indicators.

B. Major Compulsory
3. Systematic random sampling:
First review:
The authors indicated that they have used systematic random sampling to select the households. But, they failed to mention or calculate the sampling interval and indicate the sampling frame used. At the same time, they mentioned that they have used the EPI method to select the households. The EPI method is used when random or systematic random sampling is not possible to select the households (e.g. if there is no list of households). This confusion needs to be addressed in their paper.
Not addressed. Would suggest the sorting out of the confusion:
So far there is no problem, but the next stage of selecting the first household to be visited is very difficult.
In the WHO/EPI village model, the instruction requires the field worker to go to the 'centre' of the village, select randomly a direction and count the number of houses between 'centre' and the village boundary, and select from this number of households randomly the first to be visited.

Response: The standard procedure for EPI method has now been included. A paragraph long statement has been included. Further, the sampling procedure soundness was assessed by a biostatistician. See page 4, paragraph 3, and line 4-9 under methods section.

We indicated that we have used systematic random sampling to select the households. We have calculated sampling interval for each kebele. We are using systematic random sampling and EPI method because we don’t have sampling frame. Systematic sampling can be used in case of absence of sampling frame.

In the WHO/EPI village model, the instruction requires the data collector to go to the 'centre' of the kebele (kebele administrative office in our case), select randomly a direction and count the number of houses between 'centre' and the kebele boundary, and select from this number of households randomly the first to be visited.

What we have done is exactly similar with WHO/EPI village model. We first count the total number of houses between the kebele administrative office and the boundary of the kebele. The sampling interval was calculated. By rotating a pencil on a book, where the sharp end indicating was taken to be the first household. The subsequent households were selected by using the sampling interval. Data collectors were continuing their interview until the calculated samples were obtained.

5. Originality:
First review:
How does this study differ from other studies - i.e. what were its strengths and limitations compared to other studies from similar setting? What are their recommendations regarding the high prevalence of chronic iodine deficiency in the study communities?
Re-review:
Not addressed. Would still suggest the inclusion of limitations and strengths of the study.

Response:
The present study has its own strength and some limitations. The last paragraph of the discussion section in the revised version of this manuscript has been devoted to illustrate these issues. See the last paragraph under discussion section.

We have used community based cross sectional study design. Unlike others which were school based surveys ours is by using house to house visit to select study subjects. Hence our study
incorporated children who might not been enrolled in school or might have dropped out of school due to social stigma created by IDD. The study also revealed both chronic iodine deficiency and recent iodine intake by measuring salt iodine level using MBI test kits. The study revealed the existence of severe IDD after Ethiopia launched universal salt iodization. But the study cannot determine the causal relationships between goiter (indicator of IDD) and the predictor variables in the analysis since it is cross-sectional study. Inter observer Bias both in grading of goiter and determining iodine level of salt by rapid test kit was also limitation of this study.

Recommendation is added on the revised version of the manuscript. (See page 8, conclusion section line 3-5)

C. Minor Essential Revisions

8. Conclusion in the Abstract
First review: The last statement can be rewritten as it is a mere duplication of the result section and would be good to include recommendation of the study as well.
Re-review: This part can be rewritten as (optional): Chronic iodine deficiency was a severe public health problem in the study communities. Ensuring the use or consumption of iodized salt and promotion of fish intake at the household level are highly recommended.

Response: The reviewer’s suggestion has now well taken in the revised manuscript.

11. Sampling technique
First review: Multistage sampling involves a number of stages. For example, two stage sampling starts with the first stage where a number of clusters (collections of individuals or households) are randomly selected. The second stage is when individuals or households are randomly selected within each cluster. But, the authors failed to mention the actual number of staging that they have used in their study.
Re-review: Not addressed. Would suggest the mentioning of the actual number of staging.

Response: The present study underwent though two different stages. We have addressed this issue.

13. Pages 3, 6:
First review: Make sure that reference ranges are used for the same information. Better to report as “it was 22.3% in southern Blue Nile area of Sudan (12), 11.4% in Jodhpur district of Rajasthan (13) and 20.5% in India (14)” than “it was 22.3% in Southern Blue Nile area of Sudan, 11.4% in Jodhpur district of
Rajasthan and 20.5% in India (12-14)*. Re-review: Addressed but not all.

**Response:** Corrected.

17. Reference number 15
First review: YB is Yemane Berhane. Re-review: Not addressed

**Response:** It was actually presented under reference # 14. However, it has now been corrected accordingly.

Level of interest:
First review An article of importance in its field
Re-review: An article of importance in its field
Quality of written English
First review Not suitable for publication unless extensively edited
Re-review: Needs some language corrections before being published

**Response:** The language revision has been completed in close consultation with an expert in the field.

Statistical review
First review: Yes, and I have assessed the statistics in my report. Re-review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests
First review: I declare that I have no competing interests Re-review: I declare that I have no competing interests

What next? Accept after minor essential revisions (which the authors can be trusted to make).

**Level of interest:** An article of importance in its field
**Quality of written English:** Needs some language corrections before being published. See our response above.
**Statistical review:** No, the manuscript does not need to be seen by a statistician.