

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Food Insecurity and Its Predictors among Lactating Mothers in North Shoa Zone, Central Ethiopia: A Community Based Cross-Sectional Study
<b>AUTHORS</b>	Getacher, Lemma; Egata, Gudina; aynalem, yared; Molla, Abebaw; Tesfaye, Adane; Abebe, Haimanot; Bayih, Wubet; Derbie, Samuel

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Devendra Raj Singh Department of Public Health, Asian College for Advance Studies, Purbanchal University Satdobato, Lalitpur, Nepal
<b>REVIEW RETURNED</b>	04-Jul-2020

<b>GENERAL COMMENTS</b>	<p>It is important that this study highlights the important issues faced by lactating mothers, especially in the context of developing countries like Ethiopia. The manuscript will therefore be of interest to those who are working in the related fields, and I hope can be published in the BMJ Open after a revision.</p> <p>Specific comments:</p> <ol style="list-style-type: none"><li>1. The authors have attempted to highlight the importance of food security. However, I could not find a clear rationale why the authors wanted to focus on this outcomes among lactating mothers in Ethiopian context? In addition, it would be helpful if the authors state the scientific gaps and how this study is going to fill the gaps. Why do the authors think that this study is beneficial for researchers and the public in other regions within and outside the country? Further, the authors have mentioned “lactating mothers” often, but did not explain what they mean by “lactating mothers” in this study. When they provided examples of post-natal mothers, it occurred to me that the authors are talking about post-natal lactating mothers, not mothers who breastfeed for up to 2 years. It is helpful to get a sense of this in the background. Why is this study important for other regions of the world?</li><li>2. Line 91-92: Please also mention the date of these prevalence of food insecurity mentioned here.</li><li>3. Line 117-119: reference missing. Please recheck the references.</li><li>4. Line 122-123: elaborate the eligibility criteria of the participant for this study?</li><li>5. Also elaborate the sampling procedure, how the lactating mothers were selected is not clear?</li><li>6. Line 164: What was modified in tools after pretesting? Please mention it clearly.</li></ol>
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	<p>7. Line 178-179: mention the complete details of the SPSS version you used in this study?</p> <p>8. Table 2: postnatal checkup means what, whether it refers to recommended PNC visits or..? If possible, please also mention times of PNC visits or present the result clearly, it is confusing the readers here?</p> <p>9. Table 2: presence of illness in last two weeks refers to ....? It is not clear.</p> <p>10. Table 3: How did you measure nutrition knowledge? It is not mentioned in the methods section?</p> <p>11. Line 242-43: check the brackets?</p> <p>12. Explain the predictors' variables in the methods section e.g. variables in the health services utilization, socio-demographic variables, and others variables including "alcohol uses"?</p> <p>13. Line 266-268: what findings is consistence with other studies, please mention it clearly while comparing your results.</p> <p>14. Line 280: where was these studies conducted, which settings, it is not clear.</p> <p>15. Line 295-98: Add relevant evidences and justify your results. Please also check this similar study conducted in Nepal. May be helpful - "Food insecurity and dietary diversity among lactating mothers in the urban municipality in the mountains of Nepal".</p> <p>16. Line 324-328: Also add a sentence to reflect your recommendations based on the current findings.</p> <p>17. Line 319: Elaborate how you minimized the bias in your study through probing?</p>
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<b>REVIEWER</b>	Sarah McKune University of Florida, USA
<b>REVIEW RETURNED</b>	15-Jul-2020

<b>GENERAL COMMENTS</b>	<p>The study is a cross sections study of over 600 lactating women to assess food security as experienced and reported by women in Ethiopia. Food security is a major concern in Ethiopia, and understanding its underlying causes is an important area of research and development intervention.</p> <p>Overall, the manuscript is in severe need of editing by a native speaker familiar with the project or with access to the research team, as intended meaning is lost throughout the document. I started to provide this type of editing, but it became clear very quickly that I could not do it without better knowledge of the project. And while the subject matter is extremely important, the manuscript takes a very basic, thin approach to presenting the findings. Moreover, interpretation of those findings are limited and do not fully consider the implications of a cross sectional study. Namely, temporal sequence cannot be established, so seeing things like dietary diversity as a predictor of FI is problematic; FI may well be the predictor of dietary diversity. Language use, inference, and discussion fails to reflect a full understanding of what can be discerned from this dataset.</p> <p>In short, the manuscript lacks depth. The data are important, but don't tell the reader anything particularly new. I suggest highlighting and framing what is new (talking to lactating mothers, for example). If this study compared engagement of mothers with other data from the region that engaged fathers; or fit into a framework of women's empowerment and understanding why women's experience of FI was essential to intergenerational nutritional outcomes, etc., the data would be more meaningful. At</p>
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	<p>minimum the paper needs a strong rewrite, as it lacks academic depth and impact as is.</p> <p>Some detailed comments follow:</p> <p>The outcome variable (food insecurity) needs to be better defined in the methods section of the paper. For example, was each of the nine questions simply a yes/no rather than any follow up about how frequently the situation occurred? How was this FI variable “adapted” from the FANTA HFIAS? Where was the threshold yes/no for the final variable defined (range 0-9)? Better explanation is needed to fully understand and evaluate the statistical methods used.</p> <p>There is use of language throughout that I am not familiar with. For example, I have never seen the term “bivariable” analysis instead of “bivariate”; perhaps this is regional or simply nomenclature, but it derails the reader (line 190). Similarly, I am unfamiliar with the statistical term “enter method”. Is this stepwise regression? (line 234)</p> <p>The researchers need to clarify which data are self-reported as opposed to measured. For example, is illness assessed (fever check) or self-reported; are ante natal visits self reported, or part of the family folder from which women were selected? What about knowledge of nutrition – assessed or self-reported? If the it was assessed, how?</p> <p>It is standard to use “food secure” and “food insecure” as adjectives rather than the past tense (no d on the end).</p> <p>Comparing food insecurity across regions without controlling for seasonality or intention of measuring (was it during a crisis, a typical year, pre-harvest, etc.) makes comparability across countries and even regions of limited value. I do not think comparing it to 10-12 other sites strengthens the paper. I would consider either using a table/figure to compare these numbers or just presenting them in a range. (line 266-274)</p>
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### VERSION 1 – AUTHOR RESPONSE

**Reviewer(s)' Comments to Author:**

**Reviewer: 1**

Reviewer Name: Devendra Raj Singh

Institution and Country:

Department of Public Health, Asian College for Advance Studies, Purbanchal University Satdobato, Lalitpur, Nepal

Competing interests: None declared

Please leave your comments for the authors below. This study must highlight the important issues faced by lactating mothers, especially in the context of developing countries like Ethiopia. The manuscript will,

therefore, be of interest to those who are working in the related fields, and I hope can be published in the BMJ Open after a revision.

Specific comments:

1. **Reviewer:** The authors have attempted to highlight the importance of food security. However, I could not find a clear rationale for why the authors wanted to focus on this outcome among lactating mothers in the Ethiopian context? Also, it would be helpful if the authors state the scientific gaps and how this study is going to fill the gaps. Why do the authors think that this study is beneficial for researchers and the public in other regions within and outside the country? Further, the authors have mentioned "lactating mothers" often but did not explain what they mean by "lactating mothers" in this study. When they provided examples of post-natal mothers, it occurred to me that the authors are talking about post-natal lactating mothers, not mothers who breastfeed for up to 2 years. It is helpful to get a sense of this in the background. Why is this study important for other regions of the world?

**Author Response:**

- First, thank you, Devendra Raj Singh (Assistant Professor), for your constructive comments and feedback on our manuscript to increase its scientific integrity and quality.
- **Please see below for our detailed responses to your comments on this manuscript.**
- Note that all updates to the manuscript have been made in a **highlight** in the main documents.
- Next, regarding the rationale and gap of the study why we authors wanted to focus on food insecurity among lactating mothers in the Ethiopian context is well explained in the main body of the text (see line 101-121). But some of the points are raised here.
- The rationale of the study is to assess food insecurity and its predictors in lactating mothers which were not addressed by the existed evidence, to fill the gaps and to add more evidence in this field of study.
- ✓ The effect of home gardening practice and alcohol use by their husbands on food insecurity of mothers has been not well addressed by previous studies.
- ✓ The previous studies did not address the lactating mothers feelings of uncertainty or anxiety over food, perceptions that food is of insufficient quantity, perceptions that food is of insufficient quality, reported reductions in food intake, reported consequences of reduced food intake, and feelings of shame for resorting to socially unacceptable means to obtain food resources for their household members.
- ✓ Moreover, most of the previous studies were only addressed the feelings and perceptions of household heads (mostly male), except for some studies which were addressed the feelings and perceptions of pregnant women.
- ✓ This indicates that there is a dearth of studies that need to address the feelings and perceptions of lactating mothers on food insecurity.
- ✓ In addition to this, most of the time in the Ethiopian context, mothers are responsible for preparing and cooking food for all household members.

- ✓ This leads them to know well the presence or absence of sufficient food for all members of the household. For this reason, lactating mothers are the best respondents for food insecurity studies.
  - ✓ Furthermore, currently, there are limited findings on food insecurity in low-income countries like Ethiopia among lactating mothers, including the study area.
  - Why is this study important for other regions of the world? → Due to the above-raised reasons, we the authors of this paper think that this study is beneficial for researchers and the public in other regions within and outside the country and another world to know the spatial difference and to use it as a scientific work.
  - The operational definition of what “lactating mothers” means is explained in this study (see line 179-80).
  - And the respondents participated in this study were lactating mothers who breastfeed their child from six months up to 2 years.
2. **Reviewer:** Line 91-92: Please also mention the date of the prevalence of food insecurity mentioned here.

**Author Response:**

- The dates were corrected (see line 94-97).
3. **Reviewer:** Line 117-119: reference missing. Please recheck the references.

**Author Response:**

- The missed reference was checked and corrected (see line 125-129).
4. **Reviewer:** Line 122-123: elaborate on the eligibility criteria of the participant for this study?

**Author Response:**

- The eligibility criteria of the participant for this study are elaborated well (see line 133-136).
5. **Reviewer:** Also elaborate on the sampling procedure, how the lactating mothers were selected is not clear?

**Author Response:**

- Regarding the sampling procedure, how the lactating mothers were selected is explained in the method section of the manuscript (see line 143-153).
6. **Reviewer:** Line 164: What was modified in tools after pretesting? Please mention it.

**Author Response:**

- After the pretest had been done, all the necessary adjustments were made.
  - These were, the questions related to knowledge of nutrition, the approaches of the data collectors, and the ability to review the mothers were further modified and improved (see line 202-204).
7. **Reviewer:** Line 178-179: mention the complete details of the SPSS version you used in this study?

**Author Response:**

- Its detail is mentioned (see line 222-23).

8. **Reviewer:** Table 2: postnatal checkup means what, whether it refers to recommended PNC visits or...? If possible, please also mention times of PNC visits or present the result clearly, it is confusing the readers here?

**Author Response:**

- Just it refers to recommended PNC visits for mothers after delivery until the child grows up. As WHO recommends, at least three additional postnatal contacts are recommended for all mothers and newborns, on day 3 (48–72 hours), between days 7–14 after birth, and six weeks after birth. But the main intention of this question in this study is that, as it is known, health professionals give a nutrition education and counseling during PNC follow up for mothers. So, our intention is really to know whether or not the mothers got enough information about their nutrition during their PNC follow up.

9. **Reviewer:** Table 2: the presence of illness in the last two weeks refers to ....? It is not clear.

**Author Response:**

- The presence of illness in the last two weeks means in this study just to understand whether the mothers have got illness in the last time (two weeks in this study) or not.
- There are different reasons why we are assessing this variable. One reason is that ill mothers cannot work effectively and at the end cannot produce. On the other hand, illness/disease can be decreasing the appetite of mothers. As a result, food insecurity will affect them.

10. **Reviewer:** Table 3: How did you measure nutrition knowledge? It is not mentioned in the methods section?

**Author Response:**

- The knowledge of mothers about nutrition was assessed and computed based on six questions using a mean score.
- The questions include about the awareness of mothers about nutrition, dietary diversity practice and taking varieties of food groups, types of varieties of food groups, definitions of the term varieties food groups, definitions of the term malnutrition, causes of malnutrition and consequences of malnutrition.
- It is mentioned well in the method section of the study (line 243-249)

11. **Reviewer:** Line 242-43: check the brackets?

**Author Response:**

- All brackets are checked and corrected.

12. **Reviewer:** Explain the predictors' variables in the methods section e.g. variables in the health services utilization, socio-demographic variables, and other variables including "alcohol uses"?

**Author Response:**

- All variables used in this study are explained in the Methods section (see line 165-172).

13. **Reviewer:** Line 266-268: what findings are consistent with other studies, please mention it clearly while comparing your results.

**Author Response:**

- It is mentioned clearly about the comparison of this study result with other findings.

- The sentence is corrected as the finding of this study (36.8%) is consistent with the other studies (see line 331-32).

**14. Reviewer:** Line 280: where were these studies conducted, which settings, it is not clear.

**Author Response:**

- It is corrected as this is in line with the study conducted previously in the rural area of Ethiopia (Farta District and Babile District) and South Africa in a community-based setting (see line 345-46).

**15. Reviewer:** Line 295-98: Add relevant evidence and justify your results. Please also check this similar study conducted in Nepal. May be helpful - "Food insecurity and dietary diversity among lactating mothers in the urban municipality in the mountains of Nepal".

**Author Response:**

- Thank you for your best information.
- During the study period, we try to search for all relevant studies in different databases like (PubMed, Scopus, Google Scholar, Google, HINARI, etc.) using appropriate search terms and search engines (see line 155-56).
- However, related to the article you recommend us, it was published after we already prepared the study and submitted this manuscript. And also, the study is not assessed home garden practice of mothers.

**16. Reviewer:** 16. Line 324-328: Also add a sentence to reflect your recommendations based on the current findings.

**Author Response:**

- There is a recommendation suggested by this study according to the main finding (see line 376-383)

**17. Reviewer:** Line 319: Elaborate on how you minimized the bias in your study through probing?

**Author Response:**

- Simply probing in this study means just explaining in detail about the question they were asked in between the interview. Probing, explaining the detail of question to make it clear, was the main approach used to make the respondents understand the question more and respond to appropriate answers to get the intended information completely. So, by doing this we may be minimize reporting bias.

**Reviewer: 2**

Reviewer Name: Sarah McKune

Institution and Country: University of Florida, USA

Competing interests: None.

**Reviewer:** The study is a cross-sections study of over 600 lactating women to assess food security as experienced and reported by women in Ethiopia. Food security is a major concern in Ethiopia, and understanding its underlying causes is an important area of research and development intervention.

**Author Response:**

- Thank you, Dr. McKune (Ph.D., Assistant Professor), for your best and constructive comment.

- Please see below for our detailed responses to your comments on our manuscript.
- Note that all updates to the manuscript have been made in a highlight in the main documents.
- **Reviewer:** Overall, the manuscript is in severe need of editing by a native speaker familiar with the project or with access to the research team, as intended meaning is lost throughout the document. I started to provide this type of editing, but it became clear very quickly that I could not do it without better knowledge of the project. And while the subject matter is extremely important, the manuscript takes a very basic, thin approach to presenting the findings. Moreover, the interpretation of those findings is limited and does not fully consider the implications of a cross-sectional study. Namely, a temporal sequence cannot be established, so seeing things like dietary diversity as a predictor of FI is problematic; FI may well be the predictor of dietary diversity. Language use, inference, and discussion fail to reflect a full understanding of what can be discerned from this dataset.

**Author Response:**

- The manuscript was edited by colleagues familiar with the project and within the research team to increase the meaning throughout the document.
- Besides, we also check and edit the grammar and language issues through online editor programs such as **R Pub sure** <https://pubsure.researcher.life/certificate/5f8d78ec> , **Automated Editing Tool in Research Square, and Grammarly.**
- All amendments for the English language use, inference, and editorial problems are corrected and highlighted in the main body of the manuscript.
- Regarding the limitation and nature of a cross-sectional study (as it is mentioned inline 384-396), and as it is known, it cannot establish a temporal sequence between the outcome variable and the independent variables.
- Again, it has a problem of “chicken and egg dilemma” (which comes first is not well known).
- In the case of food insecurity and dietary diversity also face the same problem. In some findings like a study conducted in Tanzania (**10**) indicates that dietary diversity/pattern is a factor of food insecurity.
- When we see it logically, it seems food insecurity comes first. But, on the other hand, food insecurity can be a factor of poor dietary diversity.
- If there is apparent and severe food insecurity in once country or area, indirectly it indicates that a monotonous diet become common to satisfy the daily preference of individuals and poor dietary diversity will become prevalent.
- As a result, due to food insecurity, dietary diversity will be affected.
- Besides, in the HFIAS tool, food preference (diet varieties) is one of the nine questions that means if there is food insecurity, dietary diversity is also affected.

**Reviewer:** In short, the manuscript lacks depth. The data are important but don't tell the reader anything particularly new. I suggest highlighting and framing what is new (talking to lactating mothers, for example). If this study compared engagement of mothers with other data from the region that engaged fathers; or fit into a framework of women's empowerment and understanding why women's experience



of FI was essential to intergenerational nutritional outcomes, etc., the data would be more meaningful. At a minimum, the paper needs a strong rewrite, as it lacks academic depth and impact as is.

**Author Response:**

- Thank you for this important comment.
- To increase the depth and impact of the study different amendments are done in this manuscript as it is indicated in **highlight** in the main documents.
- Concerning the new thing in this study, it is trying to explain it in detail in line (101-121).
- To tell frankly, there is a dearth of studies conducted among lactating mothers in Ethiopia. To the best knowledge of the authors of this study, there is no study that directly conducted among these populations by this title previously.
- The other reason to study on this topic is that there is a dearth of studies that need to address the feelings and perceptions of lactating mothers on food insecurity in Ethiopia.
- In the same way, lactating mothers are the best respondents for food insecurity studies, because they are the ones who prepare and cooking the food.
- As result, they knew about whether there is sufficient access of food for all members of the household or not.

**Some detailed comments follow:**

**Reviewer:** The outcome variable (food insecurity) needs to be better defined in the Methods section of the paper. For example, was each of the nine questions simply a yes/no rather than any follow up about how frequently the situation occurred? How was this FI variable "adapted" from the FANTA HFIAS? Where was the threshold yes/no for the final variable defined (range 0-9)? A better explanation is needed to fully understand and evaluate the statistical methods used.

**Author Response:**

- The outcome variable (food insecurity) with its classification was defined well in the methods section of this paper (see line 181-196).
- Each of the nine questions has yes/no response followed by the frequency of the situation (see line 228-242) and (see Table 4).

**Reviewer:** There is the use of language throughout that I am not familiar with. For example, I have never seen the term "bivariable" analysis instead of "bivariate"; perhaps this is regional or simply nomenclature, but it derails the reader (line 190). Similarly, I am unfamiliar with the statistical term "enter method". Is this stepwise regression? (line 234)

**Author Response:**

- The word "bivariable" was corrected as "bivariate" throughout the document.
- Regarding the "enter method", it is the default method in a regression analysis like forward (conditional, LR and Wald) and Backward (conditional, LR, and Wald) in SPSS software.

**Reviewer:** The researchers need to clarify which data are self-reported as opposed to measured. For example, is illness assessed (fever check) or self-reported; are antenatal visits self-reported, or part of

the family folder from which women were selected? What about knowledge of nutrition –assessed or self-reported? If it was assessed, how?

**Author Response:**

- The self-reported data reported by mothers and measured data are measured by the researcher. For example, the previous illness of mother was assessed by self-reporting whereas the current illness was assessed by self-reporting plus measured (like fever check). On the other hand, antenatal visits, and knowledge of nutrition were self-reported data by the mothers.

**Reviewer:** It is standard to use “food secure” and “food insecure” as adjectives rather than the past tense (no d on the end). Comparing food insecurity across regions without controlling for seasonality or intention of measuring (was it during a crisis, a typical year, pre-harvest, etc.) makes comparability across countries and even regions of limited value. I do not think of comparing it to 10-12 other sites strengthens the paper. I would consider either using a table/figure to compare these numbers or just presenting them in a range. (line 266-274)

**Author Response:**

- The word food secured and insecured was corrected in the whole document as food secure and insecure. All other comments were also corrected as appropriate as in this paper.
- It is known that comparing food insecurity across regions without controlling for seasonality or intention of measuring (was it during a crisis, a typical year, pre-harvest, post-harvest, etc.) makes comparability across countries and even regions of limited value.
- Because of a shortage of literature conducted among lactating mothers, the studies are used with their possible seasonality variation (post-harvest in this study) and measuring of intention (see line 384-85, 394-396).

**VERSION 2 – REVIEW**

<b>REVIEWER</b>	Devendra Raj Singh Department of Public Health, Asian College for Advance Studies, Purbanchal University Lalitpur, Nepal
<b>REVIEW RETURNED</b>	07-Sep-2020
<b>GENERAL COMMENTS</b>	Authors have addressed my comments.

**VERSION 2 – AUTHOR RESPONSE**

- ❖ **Reviewer:** The researchers need to clarify which data are self-reported as opposed to measured. For example, is illness assessed (fever check) or self-reported; are antenatal visits self-reported, or part of the family folder from which women were selected? What about knowledge of nutrition –assessed or self-reported? If it was assessed, how?
- ❖ **Author Response:**

- In this study, the self-reported data means reported by mothers during the interview and the measured data means which was measured by the data collector or researcher during data collection period.
- For example, the previous illness of mother was assessed by self-reporting of mothers whether they faced any illness in the last time or not whereas the current illness was assessed by self-reporting plus measured like fever check and measure temperature (see line 184-86).
- Regarding the antenatal visits (ANC), first the data collectors ask the mothers about their ANC follow up as a self-reported to know the understanding level of mothers on their health service practice like ANC. Then after they were crosschecked from the family folder in their residence of kebele (the smallest unit of administration in Ethiopia) to know really, as they have attended or not (see line 187-90).
- With regard to the knowledge of nutrition of mothers, we used self-reported data by asking the mothers about their knowledge of nutrition. It was measured, assessed and computed as follows.
- The knowledge of mothers about nutrition was assessed and computed based on six questions using a mean score. The questions include about the awareness of mothers about nutrition, dietary diversity practice and taking varieties of food groups, types of varieties of food groups, definitions of the term varieties food groups, definitions of the term malnutrition, causes of malnutrition and consequences of malnutrition (see line 179-183).
- Mothers who scored above the mean cut-off point were considered to have good knowledge and coded as “1”, whereas those who scored below this cut–off point were considered to have poor knowledge and coded as “0” during analysis (see line 243-249).