Author's response to reviews

Title: Household Food Insecurity and Mental Distress among Pregnant Women in Southwestern Ethiopia: A cross sectional study design

Authors:

Mulusew G. Jebena (mulusew.gerbaba@gmail.com)
Mohammed Taha (tahamohammed2009@gmail.com)
Motohiro Nakajima (mnakajim@d.umn.edu)
Andrine Lemieux (lemie008@d.umn.edu)
Fikre Lemessa (fikre.lemessa@ju.edu.et)
Teklu Gemechu (teklu.gem@yahoo.com)
Markos Tesfaye (tesmarkos@yahoo.com)
Netsanet Workneh (konetsanet@gmail.com)
Yinebeb Tariku (yinebeb_tariku@yahoo.com)
Esayas Kebede (esakgd@gmail.com)
Hailemariam Segni (hmullu@yahoo.com)
Richard Hoffman (rhoffman@d.umn.edu)
Mustafa a al'Absi (malabsi@umn.edu)

Version: 3
Date: 2 March 2015

Author's response to reviews: see over
Responses to the reviewers

First of all we would like to appreciate for your invaluable comments to make the manuscript more meaningful, readable and understandable to our readers. Whenever we found similar comments from all reviewers, we give one explanation. Otherwise all comments were valid and helpful to make the manuscript to the standard. We have accepted all major, minor and discretionary comments and edited the manuscript accordingly. Herewith it below described are both comments and the response of the authors towards major and some minor comments:

Comments#1 the authors do not state any clear questions or hypotheses. Their interest is looking at the prevalence of food security and mental health, as well as links between food security and mental health in a sample of pregnant women. The introduction of the paper would be greatly improved if specific hypotheses or questions were stated. In addition, the authors should provide a clear argument for why studying food security and mental health among pregnant women is new (what do we not know?) and why it is important. The absence of this argument makes the meaning of the findings unclear and less compelling. The article needs to be more theoretically grounded and articulated as part of a broader literature in a more compelling way

Response #1: we accept your comments and re state our research questions as clear as possible (see line 50-62).

Comments#2: The methods are sound for the type of study the authors conducted but, not forgetting at the more interesting question they seem to hint at which is the idea that food security and mental health have some causal relationship (the direction unknown). This has been a struggle in the broader literature on this topic. While it is not necessary for the authors to re-design the study to address that more compelling question, this limitation and the fact that the paper lacks grounding in a theoretical framework severely limits the usefulness of the work. I strongly urge the authors to better ground what they are trying to accomplish through a richer theoretical discussion of the topic in the introduction. Then, in the method section, they can better explain their methodological approach and more clearly demonstrate how their approach is appropriate for answering their research questions (which as noted above need to be better articulated in the introduction)
Response #2 we completely agree to your points. This study was considered baseline analysis to understand the extent of the problems among pregnant women in Ethiopia. The overall goal of the study was to first conduct a baseline assessment using cross sectional study design and then conduct a longitudinal study. The theoretical framework is either to know how food insecurity links to mental diseases and its effect on pregnancy outcome among cohorts of pregnant women. The present work will be useful for the coming cohort we are going to establish in the study settings to understand the link in either psychosocial or biological way by which food insecurity links to mental health outcome. We hope further evidence will be generated on these issues within short period of time.

Comments #3:

(1) the lack of explanation for the cut-offs for each of the validated questionnaires

Response: We have added description regarding the cut-off for SRQ-20 (see line ). To focus on the primary question, we have removed results from other mental distress related questionnaires (EDPS, PHQ9, and K10). Please also see line (108-118)

(2) Unclear categories of women’s union status, the number do not add up to 100%, so there is some overlap between categories and this should be clarified

Response: accepted and edited accordingly (see line161 and table 1)

(3-1) How were women selected, was age a factor?

Response: We did not target on specific age groups. We used consecutive sampling method till our sample size had fulfilled. The sample size was calculated using single population proportion formula. Assumptions for calculating the sample size were the degree of confidence interval (95%; \( Z_{1-\alpha/2} = 1.96 \)), the estimated magnitude of mental distress among pregnant women (P=50%), a 4% degree of precision, and a non-response rate of 10%.

(3-2) How do the facilities chosen compare to those not?

Response: Participant recruitment was completed in Jimma university community based teaching area radius. The farthest is 70km and the nearest is about 7km from the university. This site have been used for research, community based education practices for more than 30years. It is
difficult to compare with the remaining facilities for the following reasons. 1: These facilities were chosen purposively. 2 the characteristics of women coming at each institutions is very different. For example those women coming at Jimma Hospital differ by their socio economic and health status compared to others health facilities. 3. Still these study is limited to facility based (focus on those women coming for ANC), conversely, The majority of women in Ethiopia didn’t come for follow up (DHS 2011, only 34%). Therefore it is difficult to compare with the rest. We narrated this in discussion section(line 273-279)

(4) In the section on Tools and Measurements – (1) where were the instruments pretested and with whom, how many people participated in the pretest, were the women surveyed in the pretest also pregnant? (2) Also greater information on training and supervision is needed to demonstrate the quality of the data.

(4-1) Interviewers administering the set of questionnaires pretested the final translations (in to Amharic and Afan Oromo languages) on 5% of the sample at different two health institutions (one from urban the other from rural) amended accordingly. The result of this pre test was not included in the main analysis part. This information has been added in the Method section (line93-106)

(4-2) To protect the quality of the data, intensive training on how to approaches the clients, ethical consideration how to interview, how to refer and conduct supervision using the translated questionnaire was given for two days for recruited data collectors and supervisors. We have added this (line93-106)

(5) In the section on Questionnaires and Mental Distress – it was unclear why the authors used a postnatal mental health test among pregnant women. Some insight into the reasoning of the design is needed – the authors’ logic should be made clear so the reader can understand the instrument choices.

Response: The main purpose of this study was to characterize pregnant women in the study region. We included multiple questionnaires because they would be useful in guiding efforts to develop future large scale studies. We used different version of tools validated in Ethiopia such as Edinburg Postnatal Depression Scale. This post natal scale was validated and PHQ scales were validated to be used in pregnant women (hanlon, 2008) although their clinical utility is
questionable by the authors. But to focus on our primary question, and to make more vivid we have limited to the use only SRQ- tools (because it has approved to provide more valid and reliable estimates in Ethiopia.

(6) Can the authors provide some context on understanding the income data? They report raw incomes but this tells us nothing of the poverty level.

Responses: We agree, to capture the poverty level we should have measured wealth index. Row income data will tell nothing about the poverty (also depends on the subjective bias). In case, if it helps to get some insight we put currency exchange rate at that time.

(7) In the section of food insecurity – the cutoffs for food secure vs. insecure could be stated more clearly.

Response: accepted and modified accordingly (see line121-134).

(8) The authors mention a number of control variables. These need to be explained. In other words, why were these controls included? Each should be described and the authors should discuss how each control variable could potentially affect the outcome variables. This will also provide better information on the context of the study. We currently have no idea who these women are making it hard to appreciate the research findings.

Responses: The purpose of including control variables was to carefully examine the extent to which food insecurity was associated with mental distress above and beyond influences of those control variables. To do this, we first identified variables suggested as one of the determinants of either food insecurity or mental health. During the first model, tested those variables in a separate stepwise binary regression. Those control variables with p-value less or equal to 0.05 were included as covariates in the subsequent model. Finally, multivariate logistic regression modeling analysis was conducted using the forward selection method to explore the association of food insecurity with mental distress. Control variables selected using the analysis above (e.g., age, occupation, monthly income, and ownership of agricultural land) were included in this model to test whether the link between food insecurity and mental distress is maintained after influences of those variables were accounted for. Adjusted odds ratios (AOR) and their 95%
confidence intervals (CI) were presented as indicators of strength of association. A p-value of 0.05 or less was used to determine the cut-off points for statistical significance.

(9) The discussion is extraordinarily brief and limited. No context for this study is presented and the data are never explained in terms of their meaning in this specific population. I found this section to be very weak. It could be greatly improved if the specific findings were tied to the local context and then used to discuss the broader literature.

Response: we accepted and modify it clearly. And all minor comments were accepted and edited accordingly.

Comments: The question is reasonably well posed by the authors though I would suggest the introduction include some mention of maternal mental distress (as opposed to mental distress in general) in developing countries and Ethiopia, as well as some discussion of the determinants of common mental distress other than food security, that may impact indirectly on food security, such as education and employment status and especially gender inequality and abuse. These issues require further explication in the discussion section, with special reference to the Ethiopian or LMIC context. I suggest, as above under item 1, that the authors discuss some of the contextual factors (education, violence, gender inequality) that may impact both on food insecurity and mental distress for women, and particularly mothers in resource-poor settings, and particularly, Ethiopia. Potential causal mechanism could be discussed with possible reference to qualitative literature.

Responses: we accepted and are grateful to edit it carefully.

Comments: To what degree are the 11 health centres and one hospital representative of the zone or Ethiopia as a whole with respect to poverty, location and accessibility? This is relevant in terms of the generalizability of the findings.

Responses: it is true that we focused on study area limited to Jimma university community based teaching area radius. The farthest is 70km and the nearest is about 7km from the university. This site have been used for research, community based education practices for more than 30 years. It is difficult to compare with the remaining facilities for the following reasons. 1: These facilities were chosen purposively. 2 the characteristics of women coming at each institutions is very different. For example those women coming at Jimma Hospital differ by their socio economic
and health status compared to others health facilities. 3. Still these study is limited to facility based (focus on those women coming for ANC), conversely, The majority of women in Ethiopia didn’t come for follow up (DHS 2011, only 34%). Therefore it is difficult to compare with the rest.

Comments: There is no apparent rationale for inclusion of such a wide range of questionnaires to measure mental distress, when one has been well validated previously in the Ethiopian setting (SRQ20). Unless, there is a good rationale, which would need to be explained, I do not see the relevance of including data from several depression screens in this paper.

Responses: Infarct we administer each of these questionnaires but the analysis of this paper depend only on the results of SRQ -20 (because internal consistencies were higher compared to the others). Our intention was also to understand the face validity of each tools in different dimension. These tools also are very different to measure different dimension. For instance pregnancy-related depressive symptoms were aimed to be measured by The Edinburgh Postnatal Depression Scale (EPDS) was administered to assess pregnancy-related depressive symptoms. The Kessler Psychological Distress Scale (K10) and the Patient Health Questionnaire-9 item version (PHQ-9) were administered to measure psychological distress. All three of these scales have been validated in previous work in Ethiopia and East Africa. To avoid confusion we omitted any results related to these three questionnaires

Comments” There is lack of clarity regarding the study cited by references 28 and 38 in the first paragraph of the discussion. Are the two respective rates referring to anxiety and depression or maternal and paternal symptoms? It would be useful to locate the ‘similar previous study’ cited by reference 44, by specifically stating the study also took place in Jimma Zone. At the end of the paragraph above, a reference is required for the seasonal effect on food security status. The discussion pertaining to rates of depression in other parts of Ethiopia and in developed countries, should specify whether the rates cited refer to screening or diagnostic studies

Responses: we accepted and modify it.
Comments: This work requires some sort of policy, development or service design recommendations.
Responses: we accept and correct it accordingly
Comments: Page 5, Questionnaire to measure HFIAS, line 12: The authors indicate that the mean score was used to classify households into food secure or food insecure. This is concerning as food insecurity scores tend not to be normally distributed, therefore classifying on the mean would not be accurate. In addition, any affirmation of a food insecurity event indicates food insecurity; therefore, using a higher cutoff (as indicated by the finding of a mean of 3.5) suggests that the authors underestimated the prevalence of food insecurity in their population. The strong suggestion from this reviewer is to classify food secure and food insecure households using the classification scoring for the HFIAS to determine food insecurity prevalence as described by Coates et al. (2007) in the Household Food Insecurity Access Scale (HFIAS) for Measurement of Food Access: Indicator Guide. The analyses would have to be rerun using this revised food security classification.

Response: we appreciate the comments. We edited what we want to say. As you indicated we have used Household Food Insecurity Access Scale Score (Coetes 2007 revised version). First, we calculate HFIAS score for each household by summing the codes for each frequency-of-occurrence question. The maximum score for a household is 27 (the household response to all nine frequency-of-occurrence questions was “often”, coded with response code of 3); the minimum score is. The higher the score, the more food insecurity (access) the household experienced. The lower the score, the less food insecurity (access) a household experienced. We then calculate average Household Food Insecurity Access Scale Score using the following formula as indicated by coates.

Average HH FIAS=$\text{the average of the Household Food Insecurity Access Scale Scores dividing}$ \[ \frac{\text{Sum of HFIAS Scores in the sample}}{\text{Number of HFIAS Scores in the sample}} \]

To estimate Household Food Insecurity Access Prevalence according to the guideline, we categorized the HFIAP indicator into four levels of household food insecurity (access): food secure and mild, moderately and severely food insecure. But the estimates for mild and severe food insecurity is negligible and difficult for us for further analysis. Therefore we stick to calculating the average HHFIAS. We have checked the spearman correlation between the score and average score ($r=0.9$) and we have also describe regression to the mean bias as limitation.
Comments: In addition to the main finding that food insecurity was a risk factor for mental distress, the authors found additional significant risk factors for mental distress including previous history of intimate partner violence and household size. Each of these findings are important as some of them, such as previous history of intimate partner violence, have been associated with food insecurity as well as mental distress in other developing countries. These findings were not included in the results nor in the discussion sections. However, they cannot be ignored and this reviewer strongly suggests these findings are included within the results and discussed in the discussion. Since almost half of the discussion focuses on the reasons why food insecurity and mental distress prevalence rates differ between this study and other studies, these sections can be considerable shortened or removed to make room for highlighting and discussing the main findings mentioned above. Making this change in the discussion should also provide enough space to strengthen the discussion on food insecurity and mental distress. One paragraph describes the bivariate findings between food insecurity and mental distress but does not emphasize the multivariate results. This discussion needs to be strengthened to include more rationale for this finding and why it is appearing within their population.

Responses: we accepted the comment and edited accordingly

Comments: Page 3, Sample size and sampling section, line 10: The authors mention that a consecutive sampling technique was used to identify study subjects. This suggests that they were accepting all pregnant women into the study. Please clearly state that there were no exclusion criteria for this study and that all pregnant women were eligible. If this isn’t the case, please clearly specify inclusion/exclusion criteria.

Responses: we accepted and edited the paragraph accordingly.

Comments: Page 4, Tools and Measurements, line 3: Please describe the individuals who translated and back translated the instruments. Translation and back translation can be tricky depending on whether individuals translating are familiar with the terminology used in the questionnaires. Therefore, it would be important to specify this to assure readers the translations were culturally appropriate for the community.

Responses: we accepted and edited accordingly