Reviewer’s report

Title: Socio-demographic and Facility-Based Determinants of Perceived Quality of Nutrition Services of Pregnant and Lactating Adolescent Girls in Trans-Mara East Sub-County, Narok County, Kenya

Version: 2 Date: 28 May 2019

Reviewer: Martin Root

Reviewer's report:

The manuscript examines socio-demographic and institutional predictors of adherence to health-related advice among adolescent pregnant and lactating girls in Kenya. This was an interesting study in that the authors predicted personal health and nutrition practices among these girls based on their demographics and on their interactions with health agencies, thereby assessing the effectiveness of these agencies and their practices. There were numerous shortcomings in the manuscript, the tables, and the statistics. These are reparable.

Abstract

The general idea of the abstract is that it should be understandable without reading the article. This has been a challenge. The following issues were not clear on an initial reading of the Abstract.

p2, line2, What is IEC?

p2, line 10, The goal of assessing "the socio-demographic and facility-based factors as proxies to access to perceived quality of nutrition-specific and nutrition-sensitive services in the context of adolescents' access and utilization of nutritional advice and services" is rather wordy and difficult to understand. In the Conclusion of the Abstract, the goal is more succinctly phrased "critical facility-based determinants of utilization of nutrition services".

p2, line 41, Is "environmental hygiene (80.7%) and basic personal hygiene (69.4%)" referring to the examination facility, the subject, or the subject's home, or something else altogether?

p2, line 49, Public health centers compared to what? We have to know what the alternative of the public health center is in order to make sense of the AOR.

p2, line 51, The same is true for the distance. Can we assume that the comparison is with a longer distance?
Introduction

p3, line 39, Suggest changing "in the access and utilization of nutrition services" to "in the access to and utilization of nutrition services." Without that, the suggestion is for "access of nutritional services", which would be awkward and incorrect.

Methods

p5, line 51, Change 'relevance" to "relevant".

p6, line 38, This formula is a bit confusing. In line 28, p is set at 50%. Where did this come from? Statistic earlier indicated that 7.4% of adolescents are pregnant with their first child. We might estimate from there the number of adolescents who are pregnant with any child or are lactating. It might reach 15-20% but unlikely to reach 50%. But to return to the formula, q= 1-p, so why is the formula of pq written as 0.5x0.8283? This might suggest that p=1-0.8283 =0.1717 or 17% which fits nicely with our estimate above. But clearly the authors used p=0.5 and q=0.5 because that is the only way to yield n=384.

p6, line 49, But all of this begs the question of why bother with any of that since that was not the formula that was used. The authors tell us that z was actually set to 1.64 for p<0.10. Why bother to include lines 21-48 at all? It is only confusing. Is p<0.10 the statistical criteria for the study for significance instead of the usual p<0.05?

p8, line 24, What is a FGD?

p8, line 27, What is a CHV?

p8, line 41- p9, line8 Questionnaire-Interview Method. This is a very critical section since it is the proxy end-point of the study. These personal health practices are "assumed to have high chances of accessing quality of nutrition services." Subjects were scored as high or low utilizers based on these personal practices. By my imperfect count, there are 7 practices enumerated here. I would appreciate it if the authors would specifically enumerate these personal practices that went into this important score. Also, very importantly, these scores are never reported in the results section. Please report, probably in table 1, how many girls were high and low utilizers. In fact, as a suggestion, it might be interesting to create a whole new table of the 7 constituent variables that make up the proxy measure and describe how many girls had each, together with the Batt-scores and final proxy scores. This is an important variable. Just a suggestion.

Also, it would be very helpful and would strengthen your manuscript considerably if you could validate this proxy measure of utilization somehow. This jump from personal health practices to nutritional consult utilization seems quite a stretch and much more related to girl's mother's
education, urbanization, and family wealth. Who else has used or devised such a proxy measure or directly compared personal health practices with utilization among women or girls?

p9, line 49 Quantitative data analysis. Tables 1 and 3 have extensive Adjust Odds Ratios, but the method for these is not described. What variables are adjusted for?

p10, line 12-13, I suggest changing, "Diet diversity score tested the ability of simple dietary diversity scores to predict micronutrient adequacy of diets of women of reproductive age." to "A simple dietary diversity score was used to predict micronutrient adequacy of diets of women of reproductive age."

p10, line 17, What is WDDS?

p10, line 17, Change "intake10" to "intake" or "intake [10]".


Results

p12, line 27 Change 18.4% to 37.4% and 21.0% to 2.1% to conform with Table 1.

Table 1. The fact that the AORs are against the proxy measure is not at all clear here. It needs to be described in the title and footnote fully, especially if there is adjustment for confounders. The AOR values for Education and Religion are especially meaningless since the references group is astonishingly small. What are the reference groups for Adolescent status and Source of Food? I suspect an error in the Religion since 95% of girls apparently have a religion but only 14 apparently declare one. Rather odd. However, the text indicates that 95% of the girls indicate they are Christian. I note that the AOR = 0.624 in Table 1 is not the same as the AOR=0.61 on p12 for Dependency on parent or guardians. Also, why is the first AOR on the table for 0.490 for Adolescent status not marked as statistically significant? Why is age not included in Table 1? This is a very important descriptive variable and probably a covariant in the logistic model.

p13, line 5, This section and the Figure are a bit confusing. It would be helpful if the authors added a line or two at the beginning of this section on where these data came from and how they were compiled into this graph. I am not sure if they were from a survey or from a focus group, for example. If I understand correctly these are the responses of mothers of the girls when asked what nutritional services they found helpful. Also, I find the term "environmental hygiene" vague. What does this mean?
Table 2. Why are AORs not included in this table as with Table 1 and 3?

p.14, lines 15-20. There should be no statistical analysis here. The chi square for uneven distribution is meaningless. "Low mark (at most 3 food groups) was registered by 36.8% which was significantly below the expected frequency of 33.3%" 36.8% is not less than 33.3% and is meaningless anyway. Please rephrase.

Table 3. Same comment as above about include a description of the AOR being against the proxy. Include in title and footnote. It would be helpful here to have the frequency and percent data for this table as for Table 1. These table could be made consistent if the p-value was removed from Table 3. CBO, NGO, FBO, and IEC, need to be defined in a footnote. What are the reference groups? How can Methods of conveying messages have two reference groups?

p14, line 39, How can a participant score a 5 on 4 dichotomized items?

p15, line20, "However, even though dispensaries were frequently used, it had no influence on overall utilization of adolescent's nutrition services." This is a case in point where the authors know about the frequency of a certain usage but readers do not because it is not in Table 3. Please add this information.

p15, line 27, How can both distances be statistically significant if there is not another distance in the questionnaire to compare these against? Please inform us.

p15, lines 34-44, Again, these AORs of 7.85 and 3.91 are interesting but no comparison is made. 7.85 times what? 3.91 times what? We need to know these things.

Discussion

Conclusion

p20, lines 51-59 Remove the reference of 36.6% being higher than 33.3%. Is 33.3% an acceptable number of malnourished people just because it is 100/3?

**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.

No

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

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?
2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?
3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?
4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?
5. Do you have any other financial competing interests?
6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests
I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal