Reviewer’s report

Title: Socioeconomic determinants of malnutrition among mothers in the Amoron'i Mania region of Madagascar: a cross-sectional study

Version: 0 Date: 28 Aug 2017

Reviewer: Hasina Rakotomanana

Reviewer's report:

General comments

This is a very interesting article and topic, especially considering the fact that there is a limited amount of published studies about undernutrition in Madagascar. The study site is definitely one of the most at-risk regions of the country regarding maternal and child undernutrition. And unfortunately, there is little known about the underlying factors of undernutrition in this region, and in Madagascar in general, to direct future interventions and studies.

Sampling was done adequately and based on statistical standards. Inclusion and exclusion criteria were clearly stated. Anthropometric measurements were conducted following the international standards and diet quality assessment was carried out using international standard as well.

However, the authors need to proof-read the manuscript to correct small grammatical errors. Also, the authors should work on the paragraphs to make the flow of ideas easy to follow. This can be done by using transition words or sentences and by linking all of the sentences of one paragraph to one another. The authors should avoid too long and too short sentences. The authors should also include line numbers and page numbers.

Title

Would predictors of the nutritional status be more appropriate since the authors used multiple linear regressions analyses?

Abstract

LINE 17 “The nutritional status of mothers was evaluated by anthropometry”

Replace evaluated to assessed

Anthropometry: state BMI and MUAC here and use acronyms for the rest of the abstract
LINE 20 "…introduced investigation"

Not clear

LINE 29 "The prevalence of under nutrition (IC95%) is estimated at 17% (14%-20%)…"

Delete (IC95%)

Reporting prevalence with confidence interval is unusual, however if the authors still needs to report it then replace with 17% (95% CI: 14-20)

LINE 32 "In the multivariate analysis, …"

It would be better to report the coefficients (beta) here in addition to the p-value for all of the predictors/determinants

LINE 39 "For the mid upper arm circumference, …"

Reword "…selected variables…", using "selected" might mislead the reader that the authors chose the variables, not the model

LINE 49 "…help readjust the strategy."

What strategy are the authors talking about here? It was not hinted in the background or in the study objective.

Background

Second and fourth sentences are very similar and sounds like a repetition.

LINE 16 "To address maternal malnutrition in the world, many actions with evidence of effectiveness have been identified"

What are those "many actions"?

LINE 23 "…(BMI<18.5) among women of reproductive age was observed…"
Reword observed to reported

LINES 25-30
Sentence not clear, needs rewording

LINE 35
What are those approaches taken to solve this issue at the national level?

LINE 40
Please be specific about the "issue of malnutrition"
Connect the background information to the aim and objectives of the study. What is the importance and possible implications of the outcomes/results?

Methods
LINE 3 consider rewording the title to "inclusion criteria"
LINE 28 what are the "quarters"?
LINE 38 what was power of the calculation?
The authors should specify whether the sample size calculation based on the prevalence of maternal undernutrition using BMI or MUAC?
Why the prevalence of maternal undernutrition at the national level (26.7) was used instead of the prevalence at the regional level (41.6%)?
LINE 1 (under Data Collection section)
The authors should mention the methods used to collected the dietary diversity of mothers
LINE 6 was the questionnaire pre-tested? Or was it translated directly from the standard version?
LINE 20-23 sentence unnecessary ("Anthropometric measurement…")
LINE 30 reword to the Malagasy Ministry of Health's Ethics Committee
LINE 38 reword square meters
LINE 43 the WHO standards of undernutrition need reference
LINE 45 consider rewording dietary diversity instead of dietary practices
LINES 50-52 repetition of the preceding sentence
LINE 57 consider rewording into socio-economic variables
LINE 3 (under "Social profile")
Replace physiological status to breastfeeding status, delete (breastfeeding or not)
LINE 16 replace studied to collected
Replace gender to sex
LINE 28 consider rewording economic level
LINE 30 replace goods with material possessions
LINES 28-43 might be deleted, the authors just need a sentence explaining that they created a wealth index variable according to which tool, with references of course
LINES 52-60 how was the rice production variable created and analyzed?
LINE 52-57 sentence needs reference
LINES 1-3 (under "Data analysis")
Second sentence should be deleted
The authors should explain explicitly what statistical tests/methods were used for what purpose. For example, what was the t-test and ANOVA used for? For what variables and for what purpose?
LINE 18 why did the authors choose only to check the assumptions of linear regression by residual analysis? What about the other methods such as normality of errors…

Results and discussion
LINE 50 delete (P25-P75)
Does P25-P75 refer to 25% and 75% percentiles?
LINE 52 data not shown for wood being the main fuel used for cooking
LINE 57 sentence not finished

LINE 1 specify which tubers were consumed to replace rice

LINES 20-25 paragraph needs rewording

The authors need to be specific about what statistical test was used for the results in table 3. The wording in reporting the results depends totally on what type of analysis was carried out.

LINE 38 consider rewording "reproductive profile" because the authors refer to breastfeeding mothers. Maybe breastfeeding status would be more appropriate

LINE 41-43 similar to the comments above, the authors should be explicitly clear about what analysis was done because it is a quite strong statement

LINE 55 delete "which is an indicator of malnutrition"

LINE 47 (under "Discussion")

Reword the sentence. Suggestion: Using BMI, the prevalence of undernutrition was estimated at 17%

LINE 3 'Nutritional status is much better in the harvest period…" add developing countries at the end of the sentence or whenever the study in the reference was done

LINE 43 reference 22 is about obesity, the authors should cite studies looking at maternal dietary diversity and BMI in developing countries

LINE 45-50 sentence could be strengthened by adding a comment regarding the importance of micronutrients for women of reproductive age

LINE 57 reword women of high levels of physical activity

LINE 21 (same page as the "Conclusions" section)

This is a very important statement, the authors should add more comments based on their results on what type of interventions components would be adequate for the region Amoron'I Mania. Having evidence-based recommendations are crucial for future interventions to be successful. It is always helpful to translate research results into actions that could be possibly implemented.

There should be a section about limitations and strengths of the study as well as recommendations for future studies.
Conclusions

LINES 52-55 the paper could be strengthened if the authors add more comments in the discussion session.

Tables

The tables should be stand alone, and easily readable. The titles need to be reworded.

Table 1: consider rewording "social characteristics" because there are other variables that are not "social variables"

Stars (*) are usually used to mark significance level, the authors could use other special symbol.

Table 2: reword the title, suggestion: nutritional status of the mothers

Replace [IC 95%] by (95% CI)

Table 3: reword the title by hinting what type of statistical analysis was used

The headings are quite confusing: what is mean (SD) and what is b(SE)*. The authors should try to simplify headings and titles as much as possible.

Table 4: similar to Table 3, reword title

If a variable category (for categorical variables) was used as a reference, the authors should mention it in the table.

Is the last row of the table an error?

R2 are usually reported as decimals not percentage.

How did the authors chose/select the variables included in the multivariate model?

**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.

Yes

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:

Needs some language corrections before being published

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