Reviewer’s report

Title: Determinants of overweight with concurrent stunting among Ghanaian children

Version: 0 Date: 27 Apr 2017

Reviewer: Nassib Bueno

Reviewer's report:

The study describes a cross-sectional analysis of 7550 children (< 5 years) and sought to determine the prevalence of concurrent overweight and stunting in the same children, and the factors associated with it. The sample size and the sampling approach are the strengths of the study, but the data analysis and discussion could be greatly improved. Conclusions should be modified in order to be fully backed-up by the data.

Major comments

Style and language: I believe the paper would greatly improve with a review in style and language.

Statistical analysis: the model that the authors chose to analyze their data (i.e., using pre-established p-values in order to include variables in the multivariate model) may not be the most interesting one in this particular case. I would suggest using a hierarchical analysis (Victora CG et al. The role of conceptual frameworks in epidemiological analysis: a hierarchical approach. Int J Epidemiol. 1997;26(1):224-7) or maybe use a more restrictive p-value as inclusion criteria (such as 10%), considering that the study has enough power (due to its sample size) to detect significant associations.

Statistical analysis: Although it is not wrong, the use of odds-ratio in cross-sectional studies is rather unintuitive. There are several alternative approaches (Barros AJ, Hirakata VN. Alternatives for logistic regression in cross-sectional studies: an empirical comparison of models that directly estimate the prevalence ratio. BMC Medical Research Methodology. 2003;3:21. doi:10.1186/1471-2288-3-21.) Poisson regression may be conducted in SPSS (>
generalized linear models, using "poisson loglinear" in "type of model", "robust estimator" in the "Estimation" tab, and "exponential parameters" in "Statistics"). As Poisson regression yields prevalence rates, it is easier to interpret and understand (and also show more conservative effect sizes for the associations).
Results: The authors state that the odds of girls being DBM was higher than the odds of boys. Nevertheless, the confidence interval associated with the OR does not indicate statistical significance. The same issue is repeated in line 45, where the authors report the aOR, and the associated confidence interval (which does not indicate significant difference).

Results: As there was no trending proved in wealth index analysis, the discussion and conclusions regarding it should be waived. What is the possible explanation to the fact that the fourth quintile had higher odds but the richest quintile did not?

Discussion: The authors spent some time discussing non-significant data such as age and sex, which I believe should not have such emphasis. On the other hand, some significant data such as marital status was not mentioned in the discussion.

Discussion: The discussion is repeating several data from the results. Authors should consider reviewing it. In some cases, such as in the last paragraph of "contextual determinants" there is data that was not even showed in the results section (rural vs urban origin).

Table 3: It is not clear why the shaded variables were excluded from the adjusted analysis. Breastfeeding status was significant associated with DBM and there is no mention at all regarding it in the results/discussion. In addition, actual p-values should be reported for each variable, in order to the reader be able to verify which variables were included in the "adjusted analysis". Ideally, the authors should report (in addition with the p-values), somewhere in the text, which variables composed the adjusted model.

Minor comments

Abstract - line 13: Instead of "bivariate level analysis" I believe that "multivariate analysis" would be more suitable. I would "bivariate" instead of "univariate".

Abstract - In the methodology, I suggest using "alpha value was set to 5%" instead of "P < 0.05 was used..."

Background: several typos (line 10-11).

Background: missing comma (line 27)

Page 5, line 13: replace the semi-colon by a colon.

Page 6, line 6: "stunting" is missing in the sentence.

Page 7: it says that moderate stunting was diagnosed when HAZ was between 2.00SD and 3.00SD. I believe it is missing a negative "-" value.
Page 7, Line 27: was two asterisk (***) used to denote something?

Page 7, line 40: I do not think it is necessary to state this equation.

Page 8, Line 50: There is a typo in the 95%CI of the aOR from wealth quintile.

General comment: it seems like the authors use both "double burden of malnutrition" and "overweight with concurrent stunting" to denote the same issue. I believe it would be more adequate to use only one throughout the text, in terms of consistency.

Page 9, line 1: double burden of malnutrition was already defined and should be "DBM".

Page 10, Line 17: LBW has not been defined by the authors.

Page 10, Line 38 and 47: Several typos.

Page 9 and discussion in general: I don't think that the use of "[14]" such as in the following phrase "Similarly, [14] study using Demographic Health Survey (DHS) data from Eastern, Middle, Southern, and Western Africa also revealed evident prevalence of DBM[...]") is adequate. Ideally, it should report the name of the author and then, the number of the reference.

Table 3. The footnote is somewhat unclear. Using shade patterns does not seem adequate. Maybe using "-" would be sufficient. Still, it is not clear from where the values of log-likelihood and R² are from coming from.

Throughout the text: There are several typos similar to the abovementioned ones.

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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?**
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No

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