Reviewer’s report

Title: On exploring and ranking risk factors of child malnutrition in Bangladesh using multiple classification analysis

Version: 0 Date: 03 Oct 2016

Reviewer: Scott Ickes

Reviewer’s report:

General comments

* This is an interesting and useful study as many authors have conducted logistic and linear regression analysis to identify predictors of stunting/under nutrition. The MCA analysis presented her presents a potentially useful statistical technique to order the most important predictors of undernutrition.

The overall purpose of the paper should be more clear. A hypothesis or at least a purpose statement should be included in the introduction. It seems that the goal of the article is to compare MCA, linear and logistic regression analysis approaches for identifying predictors of malnutrition, and 2) to argue that MCA is a preferential method for identifying predictors. The conclusion does state the author's main point and the study's purpose…This purpose needs to be more clearly presented at the outset of the paper.

* The authors do not adequately refer to and explain their tables in the results sections. These are complex and need more thorough explanation.

* The table footnotes or parentheses should explain more of what the predictor variables represent. For example, family size small, middle, and large should indicate the # of people that classify households in each category.

* The percentage correct outcome in table 3 is hard to understand. What is the gold standard by which this is being corrected?

* Table 4 seems superfluous and unrelated to the main objective of the paper.

* The tables need footnotes. The sample size should be noted in each table and significant results should be marked with a symbol.

Finally, please make the public health significance of this paper more clear.

Specific comments

*
The conclusion of the paper in the abstract is confusing. Do they authors mean that I order to use MCA they must be relevant to policies.

Recommend a slight revision to ensure suitability for publication in English. E.g. in line 39 "the developing" should just be "developing"

Line 49 - four-fifth needs to be four-fifths

Lines 11-12 on page 5. What do the authors mean by Bangladesh till having a high prevalence of chronic malnutrition? Compared to whom?

Line 48-50. The authors list refs 14-20 (a lot of references) simply to say that logistic regression is used to determine risk factors for stunting.

Page 4, line 11-12 malnourished, not malnourish

Line 43-44 "say" should be e.g.

The introduction is a written informally, e.g "the rest of the article is organized…” should not describe what is expected, but should introduce the objectives of the article. The introduction should set up the need for the study and not serve as a table of contents for the paper.

The methods section begins with an explanation of a statistical model. This section needs more revision to include sub-headings such as "Data source", "Statistical models", etc.

The methods section is very long and not suitable for a general nutrition audience as in includes a large amount of statistical jargon. It would be helpful clarify the study question that the authors sought to answer. Was the objective to to compare results from MCA and logistic and linear regression? If so, to what end and for what purpose? This should be mad explicit in the introduction or the end of the methods section. Did the authors have a hypothesis?

Page 14, line 32- research is not plural.

Create separate results and discussion. The authors are suggesting reasons for their results here, which seems inappropriate. Please simply state the results and discuss them separately.

Page 17, line 53- should say "and" instead of "but" because a higher z score and lower probability of stunting are the same thing.

Table 2 includes child's weight. I believe this should be birth weight.

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 recommend additional statistical review

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Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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