Reviewer's report

**Title:** Strong nutrition governance is a key to addressing nutrition transition in low and middle-income countries: review of countries' nutrition policies

**Version:** 3  **Date:** 20 May 2014

**Reviewer:** Keith Lividini

**Reviewer's report:**

Major Compulsory Revisions

1) Overall comment: The authors have done a nice job of outlining the background of the study and their hypotheses. However, I am still unclear on how the methods were carried out and how the mixed models were specified. This should be very clear to the reader. This should be developed further in the discussion of the analyses in the methods section.

Careful attention should be paid to how the models are interpreted. Many of the authors' statements focus on likelihoods and effects rather than associations which do not appear appropriate for these analyses. In addition, the variable for nutrition governance does not have a reference specified in the models. This should be checked either for potential errors in the specification of the models or development of the table. Please see my specific comments below.

2) Abstract/Conclusion: “Having strong nutrition governance that includes updated nutrition policy can help to bring down the magnitudes of undernutrition in LAMICs.” This is a strong concluding statement but I don’t see that the results of the study allow for such a statement. The authors did not demonstrate an association for this condition (strong governance plus updated policy). Also, this statement assigns causality to the association but it doesn’t seem to be demonstrated in this study. I don’t see from this study how the establishment of strong nutrition governance then led to a reduction in the prevalence of undernutrition. This statement should be revised.

3) Background, last sentence: “We…conducted this review to examine…the effect of such policies and nutrition governance on magnitudes of undernutrition and overweight.” Similar to my previous comment, it isn’t apparent to me how this study specifically examines the effect of governance and policies rather than associations.

4) Methods, second sentence: “…having such policies and whether nutrition governance can help to bring about changes in the nutrition profiles of under-five children.” Again, this statement is referring to cause and effect rather than associations.

5) Methods/Databases, variables and extraction procedures/Nutrition status: The authors do not state here whether data were extracted for only one year or
multiple years. Was it only the most recent year that data were available? This should be clarified and explicitly stated.

In addition, I don't quite understand the use of the interval. Was only one data point used per country? Or were multiple data points used? How was the year interval used in the regression analysis? Was only one year entered? Please specify this in your methods. Also, in additional file 2, you have one value for the outcome variable and then an interval. Was there only one value for the interval? Or is the value reported only the last one? Again, I'm trying to understand how the data were structured and how they were used and applied.

My understanding is that you had one value for the outcome variable per country and that referred to a specific year. You then examined whether the country had a nutrition policy that year and whether it had a defined nutrition governance for that year. Is that correct? If instead of one year, the information is being applied to an interval, is one value of the outcome variable being applied to the entire interval where no other observations were present? Additional file 2 should be revised to clarify this and this should be clarified in the methods. In this file the intervals vary- some are 7 years, some 5, some only 1. I'm confused by this and this should be clarified. Also, nutrition governance should be added to additional file 2 along with the applicable year.

It should be noted that nutrition governance was assigned for the years 2008-2009, which may or may not overlap with the observation for the outcome variable or nutrition policy. Also, please specify the year that the development index refers to as well as the aggregated governance indicator.

6) Methods/Databases, variables and extraction procedures/Nutrition policies: “Then, we made a variable of nutrition policy in effect, so as to match the presence or absence of nutrition policy during the anthropometric measurement. This was done to see the effect of presence or absence thereof on nutrition status.” I agree with the authors’ decision to match the presence of the policy with the anthropometric measurement. However, matching the two is not enough to state that a cause and effect is being evaluated rather than an association.

7) Results/ Association of nutrition policies and governance with changes of stunting, wasting, and underweight statuses among LICs and MICs: “One-dollar increase in country’s GDP per capita was more likely to be associated with a decrease of stunting (beta=-0.003, p<0.001) and underweight (beta=-0.002, p=0.014).” This is worded incorrectly. This should be “every one-dollar increase in per capita GDP is association with a 0.003-unit decrease in ...”

8) Results/ Association of nutrition policies and governance with changes of stunting, wasting, and underweight statuses among LICs and MICs: “However, strong nutrition governance in effect was more likely to show decreasing trend in the prevalence of stunting (beta=-4.958, p=0.015); wasting (beta=-5.418, p=0.003); and underweight (beta=-6.452, p=0.001).” Was this a trend or an association? What was the reference for this variable? One of these levels should be the referent.
9) Discussion/ 1st paragraph, last sentence: “This study also found that strong nutrition governance is more likely to be associated with lower magnitudes of undernutrition.” What was the reference for this statement. Was it weak governance? Since you aren’t dealing with odds, the statement “more likely” is not correct. It should be stated as “as compared with … strong governance is associated with…”.

10) Discussion/ 2nd paragraph: “In addition, an increase in GDP per capita was more likely to be associated…” Again, the words “more likely” should be removed.

11) Discussion: “Second, to examine the changes of nutrition statuses over time, we used data for as many different years and different countries as we could get.” Does this mean multiple years per country?

12) Table 3: There are n’s missing and some are incorrectly labeled.

13) Table 5: What do the superscripts mean?

14) Table 5: What is the referent for the nutrition governance?

Minor Compulsory Revisions

1) Results/ Association of nutrition policies and governance with changes of stunting, wasting, and underweight statuses among LICs and MICs: How many LAMICs had data on stunting and governance; wasting and governance; underweight and governance; and overweight and governance?

2) Discussion/4th sentence: “At region-wise” should be changed to “regionally”.

Discretionary Revisions:

1) Regarding whether or not to include the presence of policies that are not national policies, the issue is less about examining those associations and more about controlling for confounding effects. If nutrition programs conducted by international agencies and NGOs constitute a strong presence and influence, these should be controlled for.

2) Table 3: I’d like to see a table showing mean outcome for each level of governance and also mean outcome for presence of nutrition policy in unadjusted analysis.

3) Table 3: It would be interesting to see the average prevalence of each outcome variable by country level and presence of a policy.

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.
Declaration of competing interests:

No competing interests.