Reviewer’s report

Title: Associations of childhood, maternal and household dietary patterns with childhood stunting in Ethiopia: Proposing an alternative and plausible dietary analysis method to dietary diversity scores

Version: 0 Date: 30 Sep 2017

Reviewer: Debbie Humphries

Review's report:

Review September 2017: NUTJ-D-17-00188

This manuscript presents an innovative approach to better extracting the richness of dietary patterns from dietary diversity data. The extraction of the patterns follows accepted methods, and analysis of the association of patterns with child stunting is basic.

Specific comments:

While you reference the literature on dietary patterns associated with non-communicable diseases, others are addressing the same question in the context of lower and middle income countries, and that literature needs to be included. See, e.g., Humphries, Dearden et al., Economics of Human Biology, Aug 2017.

Use of the term 'traditional' is highly problematic as someone who is not familiar with the traditional Ethiopian diet will not know what it consists of. Better to name the foods being consumed in the pattern (eggs, meats, legumes, cereals, oils, fats and sweets). In addition, at the household level, fruits loaded higher in the 'traditional' pattern than they do in the dairy, fruits and vegetables pattern, making use of the label somewhat problematic. Given that you're using different food groups for each of the levels of consumption (HH, woman, kids <24 months, kids 24-59 months), it seems like it's reaching a bit to try to use parallel pattern groups.

While stunting is regularly used and reported in programmatic literature and evaluations, from a scientific perspective use of the continuous variable, HAZ, is preferred. The biological difference between a HAZ of -2.1 vs. -1.99 is insignificant, but stunting separates them into different categories. Use of the continuous variable better captures the biological reality. Please run your models with the continuous anthropometric variables.

In your results you need to interpret the meaning of the tertiles and patterns. It looks as if each child, woman and household had a separate score for each of the three patterns, how did the tertiles fall out? Were the same households in the third tertile for multiple patterns? Is there an interaction between the patterns? Analysis needs to be taken further to include all three levels of
tertiles, to look at how household, maternal and child tertiles are related, particularly since you have all patterns at each of the three levels. Table 5 is confusing, and needs to be clarified visually.

Abstract:
Please name the patterns you observe (dairy, vegetable, fruit; 'traditional') in the abstract.

Background:
You say analysis of dietary data have remained challenging for various reasons. Please specify at least some of those reasons.

Methods:
Give details on how you assessed and labeled household food security.

Results:
'More than half … had a DDS less than or equal to the median.' That's the definition of median…not a result.

Discussion:
'Dietary patterns represent the whole picture of eating habits’. Dietary patterns, in the absence of quantities, cannot tell the whole story. Rephrase what you're trying to say. They may represent more than a dietary diversity score, but they don't represent the whole picture.

Typos -
prevalence ration
food secured households
no significant between
dietary patterns z score

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