Reviewer’s report

Title: Dietary Patterns and Cardio-metabolic Risk in a Population of Guatemalan Young Adults

Version: 2 Date: 05 Jun 2017

Reviewer: Kate Northstone

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A potentially interesting paper examining the association between dietary patterns extracted via PCA and heart disease risk factors. I appreciate this is the second revision of this manuscript but it is the first time I have seen it and more detail and justification is required around the PCA. My specific comments are as follows;

1. What is the justification of using PCA over any of the other methods for extracting dietary patterns. This needs adding to the introduction.

2. The point of PCA is to reduce the dimensionality of the data. The authors appear have halved the dimensionality before they even start - 52 food items were combined into 27 food groups prior to the PCA. It is not clear from Table S1 what the original 52 food items were.

3. I do not understand the factor loadings presented in the various tables. Factor loadings are correlations between each food item and each pattern and therefore should be between -1 and +1. So how does one interpret e.g. a factor loading of 23 (corn tortilla for meat based-modern pattern)? I assume this should be 0.23? Please correct throughout.

4. Table 2 is the primary table of interest and ALL factor loadings should be presented. (as they are (or at least something is given point 3 above) in the two supp tables.

5. With PCA it is usual to rotate the solution. Has this been done? If not why not.

6. If alcohol consumption is included in the PCA why examine associations between it and dietary patterns? What is the justification for including alcohol as it could be argued this is a lifestyle factor rather than dietary intake per se.

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.

Unable to assess
Are the conclusions drawn adequately supported by the data shown?
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No

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