Author's response to reviews

Title: Food patterns and dietary quality associated with organic food consumption during pregnancy; data from a large cohort of pregnant women in Norway

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Author's response to reviews: see over
Dear Editor,

Thank you for the positive response to our revised manuscript. We are very pleased to see that the reviewers now are mostly content with the manuscript. Please see below for our comments to the two remaining issues raised by the reviewers.

We have addressed the two points raised by the reviewers with more detailed explanations in the manuscript; please see changes marked with red colour.

Authors’ response to reviewers’ reports:

Reviewer’s report, Estefania Toledo:
Thank you for your thorough revision. I think the authors have done a great job addressing the issues raised by the reviewers.

Major compulsory revisions:
- I agree that principal component analysis is appealing for addressing main tendencies in food patterns providing summary measure of something so complex as a whole dietary pattern. However, there are some common procedures in principal component analysis, such as improving the interpretability of the factors, measures for determining the number of factors to be extracted and setting thresholds for main factor loadings. Perhaps you can find this reference interesting for this purpose: Schulze MB, Fung TT, Manson JE, Willett WC, Hu FB. Dietary patterns and changes in body weight in women. Obesity (Silver Spring). 2006 Aug;14(8):1444-53. I don’t know the Unscrambler X software but you can do all the procedures described in the cited paper with PASW statistics 17, the other software you are working with.

Answer:
Thank you for your comments and literature reference.
In our study we used PCA only for obtaining an overview of the main aspects of the dietary pattern. After having done so we gave attention to individual foods representing the main categories of interest. A cross-validation based on three segments (see e.g. Martens and Næs...
(1989)) indicates that more than two components in principle could be assessed as significant. There is, however, a clear indication from the scree plot (i.e. explained variance plot, in particular for cross-validation) that the first component is clearly dominating and only minor contributions are given by the rest of the components. We also made an attempt to interpret the third component, but no systematic information of interest could be revealed. It was also clear from the ANOVA’s conducted that component one was more important for the purpose of the study than component two which again adds to the observation that systematic information of interest vanishes with increasing component number. All these points together with the fact that we later on concentrated on the different representative components separately make us confident that our approach is the best.

Regarding the size of the loadings, one could eliminate the least important in the plot by for instance setting a limit on the explained variance for each (see again Martens and Næs (1989)), but with a plot like the present one which clearly reveals the different food category values without any serious overlap, this does not, in our point of view, add to the understanding.

Rotation as used in Scultze et al. is a risky business in such cases. First of all it depends on the number of components extracted. If one for instance decides to compute 3 components one can get a totally different solution as compared to when computing 6 components. In our study, the cross-validation did not indicate any clear cut-off when concerns the number of components to use and rotation would then increase the uncertainty of the results reported. Using only two components in the calculation and then rotating is more or less meaningless since this only represents a tilting of the plots produced without any extra information added. We therefore stick to our original philosophy of using PCA with the only focus of interpreting the main tendencies in the data given in a clear way in decreasing order according to factor number. This can be considered a conservative approach, but is in our opinion the clearest and less risky approach.

This is now explained better in the text.


Reviewer’s report, Sameera Talegawkar:
The authors of the manuscript under review have not provided a suitable rebuttal for my (major) concern regarding the exclusion of beverages in the patterning procedure. Since consumption of organic milk is one of the food items that is specifically queried in set of questions on the FFQ asking about the participants organic food consumption, not including this food group in the patterning procedure is a significant concern and limitation. This exclusion of milk gets even more confusing, when one examines the FFQ that was used in the study (http://www.webcitation.org/query.php?url=http://www.fhi.no/dokumenter/011fbd699d.pdf&refdoi=Under the "Beverage" sub-group, yogurt is a listed food item; despite this, yogurt is a food group used in the patterning procedure.

Answer:
Thank you for your comment.
In our study we decided to concentrate on the relative amount of the daily intake of the different food categories reported. This was done in order to eliminate the effect of some
persons eating a lot while others eating less. In other words we concentrate on the pattern of the food categories relative to each other. In this process we decided to eliminate the beverages. The main reason for doing so was that the beverages were very dominating in weight as compared to the other food categories. A person with a high intake of beverages and a person who drink very little, but with a similar intake of the other food categories, would then come out as completely different in the data set. This is an unwanted effect in our study. In addition we wanted to emphasise the relative importance of each food group rather than emphasising those foods which were eaten in larger amount. We therefore used a standardised analysis (we divided each variable by its standard deviation). It is then important to emphasize that we later on when analysing the different food groups, also incorporated the beverages. In this way the beverages are taken care of, but not in such a way that they damage the overall interpretation of the general food intake pattern.

Reviewer's report, Tarja I Kinnunen:
I want to thank the authors for the thorough revision of the manuscript based on the referees’ comments. I have no more comments or questions for you.

Reviewer's report, Hazel Inskip:
The authors have addressed the points I made before, and along with their re-writing of the paper to address the all the reviewers' comments, I believe that the paper is much improved. I found it much easier to read and to follow, and the tables were clearer. I have no further comments.

On behalf of the authors, I would like to thank all reviewers for their constructive comments. We hope that the paper now is suitable for publication.

Yours sincerely

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