Reviewer's report

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

Version: 2 Date: 22 February 2012

Reviewer: Tarja I Kinnunen

Reviewer's report:

The study has examined an interesting topic of which very limited data is available. The very large sample size is also a strength of the study. However, overinterpretation of the practical significance of the results should be avoided, since almost all minor differences become statistically significant in this large sample.

Major compulsory revisions

Background
1. The Background section was a good introduction to the topic, its significance and the previous knowledge on the issue. The last paragraph concerning the aims of the study could still be clearer and in accordance with what was actually studied. Please add that the question whether consumption of organic food is associated with food intake and nutrient density (not only with dietary patterns as it is now) was also studied.

Methods
2. It is unclear if more than two principal components were identified in the analyses. The following text in chapter Statistical analyses on page 8 raised this question: “(described by the TWO FIRST principal components)”. Please specify if more than two components were found.

Results
3. Please start the Results section by reporting some background characteristics of the participants (e.g. age, parity, BMI, education) even if they were reported in previous publications.
4. Since the data analyses are based on patterns identified among 28 food groups and “the interrelations between food groups were more a less similar independent of whether large (58) or more aggregated number (28) of food groups were used”, a detailed description of these 58 food groups is not needed. Therefore, please remove Figure 1. Supplemental Tables 1 and 2 are also not necessary either. Data concerning the 28 food groups in Supplemental Table 1 could be included as an actual Table in the manuscript. Please also remove the score plot under Figure 2.
5. The differences in PC1 and PC2 scores between the groups of low and high
consumption of organic foods were reported in Table 1. Please also report the actual mean scores (at least for the group with low consumption of organic food) as otherwise it is difficult to interpret the actual significance of the difference.

6. When reporting dietary patterns, food intakes and nutrient densities associated with the six different groups of organically produced foods (Tables 1 and 2), please specify what the control group was. Was it the whole group of women with low consumption of organic food or something else? Furthermore, the layout of Tables 1 and 2 could be improved as now they were difficult to interpret at first. In particular, it was not clear which of the subgroups belonged under the heading “Frequent consumption of organic food”. Please also report the numbers of women in each column.

7. Figures 3 and 4 provide more detailed information on the relation between the frequency of consuming organic food and intake of vegetable or meat. It is unclear why just vegetable and meat intake were chosen and whether other food groups were analysed (although not reported). The scale of the y-axis makes the differences look larger as they actually are. I doubt if these two figures provide any essential additional information and suggest removing them.

8. I have some concerns regarding results of analyses presented in Table 3: What was the purpose of stratifying the data by PC1 level? To control for the general quality of diet as a potential confounder? I wonder if a more appropriate approach would have been to control for factors that are associated with both the exposure (frequency of consuming organic food) and the outcome (intake of food groups) in a multivariable model? The previous study by Torjusen et al. (2010) showed that variables such as age, education, BMI, exercise etc. are associated with consumption of organic food – and are probably associated with the quality of diet in general as well! Please consider taking the most relevant of these (and other potential confounders) into account in the analyses.

Alternatively, please give a justification for the analyses (re Table 3) and explain it also in the manuscript. Please also discuss if there were any other potential confounders and why were they not taken into account in the analyses.

It is probably a too strong expression to say that those who were in the same tertile of the ‘health and sustainability’ component had “otherwise similar diets”. Please give reasons (also in the manuscripts) why only those six food groups were included in the table. Additionally, please check if the total and the column specific numbers of women are correct and specify of which numbers the percentages were calculated.

9. As a summary of my comments above, only the most relevant tables and figures should be reported. These are the current Tables 1 and 2, part of Supplemental Table 1 (28 food groups), Figure 2 and possibly also Table 3. Please also consider reporting the background characteristics of the participants in a Table (in addition to reporting them in the text), which would be the first table.

Discussion

10. My main comment re Discussion is that there is a risk of overinterpreting the
meaning of the observed differences in diet between those who have low and high intake of organic foods. As the sample size is enormous in this study, most differences become statistically significant regardless of the clinical or practical significance of them. It seems to me that the size of most differences was very small. Therefore I would not say (like in the first sentence of Discussion) that frequent consumption of organic food was “strongly associated” with… Please add some discussion on the clinical significance of the observed differences in diet between the groups. The limitations in the accuracy of the FFQ should also be kept in mind when interpreting these small differences in dietary intake, especially as the FFQ “is a valid tool for ranking pregnant women according to high and low intakes” (page 18).

11. The Discussion should be condensed by cutting down the text repeating the results of the present study. The strengths and limitations of the study could be described more systematically. How about comparing the results to previous (respective) studies? If there are none, it is appropriate to emphasize that this study was the first one to address this study question.

Minor essential revisions

General
1. Some sentences seem to lack essential words or have other linguistic errors, please check the language.
2. The word “share” is used frequently in occasions where words “proportion” or “percentage” would be more understandable. Please check.

Methods
3. The general description of PCA (starting from the middle of page 9) could be replaced by a reference to a paper or book describing PCA.
4. On page 7 in paragraph Food groups: What is actually meant by “… were defined according to significance both regarding quality and quality of food as well as ability to distinguish between different types of diets”? Please be more specific or give some examples.
5. Additionally, at the end of the paragraph Food groups, shouldn’t “Not all of the 225 food items” be “…255 food items”? Anyway, I would prefer to know how many exactly were included.
6. On page 7, organic food consumption is defined as the outcome variable (in the heading), although it is actually used as an exposure variable in this study and the outcome variables are food patterns, intake of food groups and nutrient densities. Please revise or remove the title.
7. I wonder if there is an error on the second row on page 8. Should “at least ONE of the six food categories” be “at least TWO of the six food categories”? (given that “often” corresponds to value 2)

Results
8. The words “increase” and “decrease” are used very often to describe results,
but usually inappropriately in situations when the words do not refer to a 
CHANGE in a variable between two time points. Instead, they refer to a 
comparison of the level of a variable between two groups. In these cases, it 
would be more appropriate to use words “higher” and “lower” or “the difference 
between the groups”. For example on page 11: “Frequent consumption of 
organically produced food, which was reported by 9.1% of the participants, 
INCREASED the scores on both principal components. While the INCREASE in 
score on the ‘health and sustainability component’ (PC1) was considerable (0.7 
units in the scores plot)…”.

This could be revised e.g. as follows: “Frequent consumption of organically 
produced food, which was reported by 9.1% of the participants, WAS 
ASSOCIATED WITH HIGHER scores on both principal components. While the 
DIFFERENCE BETWEEN THE GROUPS in score on the ‘health and 
sustainability component’ (PC1) was considerable (0.7 units in the scores plot)… 
Please check and revise the language.

9. The components were reported to have “high positive loadings” for certain 
foods. Please specify, what was regarded as a high loading (e.g. ±0.2 or ±0.3).

Discretionary revisions

1. The previous studies describing dietary patterns in pregnant women are 
reviewed on page 5 (references 18-20). Please consider referring also to the 

2. The participation rate was 38.5% in the MoBa study, as reported in Methods 
and Discussion. However, the earlier paper (Torjusen et al. 2010, ref. 22) 
reported a participation rate of 43%, even if the data set seem to have been the 
same. Which one is correct?

3. The original cohort included 90700 women and the final study group 63808 
women. Please add how many percentages these 63808 women were of the 
original cohort.

With best regards,

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Level of interest: An article whose findings are important to those with closely 
related research interests

Quality of written English: Needs some language corrections before being published

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

Declaration of competing interests:
I declare that I have no competing interests.