Reviewer's report

Title: Gender inequalities in diet quality and their socioeconomic patterning in a nutrition transition context in the Middle East and North Africa: a cross sectional study in Tunisia

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Reviewer: Hee Young Paik

Reviewer's report:

This is an interesting work with dietary intake data of 3-day food record from a population sample of more than 2500 people in Tunisia. The paper include some important information about diet quality of women and men 20~49 years of age. However, there are several points which need clarification and revision to be published in the journal.

1. Authors emphasize gender inequality and the problem of obesity in women in Tunisia which is not presented as a part of data in this manuscript. Therefore, problem of obesity and adiposity can be mentioned as a background of the research, preferably with concrete data from the country, but it is not appropriate to address obesity with regard to the results of the current paper, unless authors include BMI, or adiposity, of study subjects and relate the results to the BMI of participants.

2. It is possible that gender inequality of the society is an important contributing factor for dietary intake of women and men in Tunisia. Were factors of non-egalitarian household and social roles for men and women measured in the study? If so, they should be presented in data and their effect on DQI-I should be analyzed. Since only more general SES indicators, such as household size, education, and professional activity, are included in the analysis, it may not be appropriate to emphasize gender inequality in this paper.

3. In 'Design and sampling," it is a stratified cluster sampling of households, but there are large difference between women and men (1,689 vs. 930). What are response rates of women and men in the sample? If response rates are different considerably, there may be a big selection bias. Can authors look into response rates of women and men, and present some information about non-responding women and men and check whether there can be sampling bias, and if so, how they should be considered in interpretation of data.

4. Since it is not common to have 3-day food record data from more than 2,500 subjects, it will be important to analyze about their dietary intake, diet quality and contributing factors for women and men in more detail, not just for difference between women and men, to derive gender-specific policy measures.
1) If body size, was measured from study subjects, and if authors want to relate DQI to obesity problem, height, weight, and calculated BMI should be included in data, and should be included in data analysis.

2) Sociodemographic factors (Table 1) of women and men in the study are similar except for education and professional activity. It is interesting women have more university education than men (22.2% vs. 17.2%). Is it true for general population? If not, it may be from sampling bias and need to be considered in data analysis. For professional activity, difference between women and men are so huge, one can wonder whether it is appropriate to include this factor in multivariate model. It may also be related to education, especially among men. It is an important information about population characteristics but authors may consider deleting this factor or find suitable way to classify the factor to use in data analysis.

3) In Table 2, please include energy as % requirements in the table. Apparently authors calculated it (LL205, p.9) but did not present clearly in the table. Mean value was 104%, significantly higher than 100, but did not present it by sex. It will be an important indication about obesity problem of the population, especially if women had higher value than men. But if there was no difference, it is still important information with regards to obesity. Usually macronutrients are presented as % energy, rather than intake per 1,000 kcal.

4) For food intakes (Figure 1), it will be easier to compare women and men if they are presented together in the same direction, but with different color than in the current graph. For foods and food groups, absolute intakes are frequently more of interests than per 1,000 kcal.

5) For statistical test for women and men difference in Table 2, were the differences adjusted for significant SES factors - education, and professional activity if authors decide to keep the factor with appropriate adjustment of categories? If so, please specify it in methods section.

6) Comparison of DQI-I of women and men are interesting. (Table 3, 4 & Figure 2) I recommend to conduct analysis of diet quality index and subcomponents in women and men separately rather than analyzing for difference only.

7) In data analysis, using too many variables in multivariate model can be dangerous. In this study sample, only education (and professional activity) was significantly different between women and men. Did authors try to analyze with adjusting for only significant variable?
4) Analyses of DQI-I > 60 in Table 4, seem to make the results more confusing, and are recommended to delete in the table.

5) Contents presented in the table need not be repeated in the text, especially in 'Results' section.

6) In 'Discussion" too much emphasis is given to excess obesity (and adiposity) in women which is not directly analyzed in this study. Also, gender inequality is not directly analyzed with the study subjects. It will make the paper more clear to limit the discussion what was actually measured and analyzed in the study.

7) In 'Conclusion', what was said in results and discussion should not be repeated but what authors found out with regard to the purpose of the study and the implications for policy or future study need to be concisely addressed. This part needs to be re-written.

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