Reviewer's report

**Title:** Association between dietary patterns and metabolic syndrome in a sample of Portuguese adults.

**Version:** 1  **Date:** 10 April 2012

**Reviewer:** YOONJU SONG

**Reviewer's report:**

Overall comment

The aim of the present study is interesting to explore the association of dietary patterns with metabolic syndrome and its components in Portuguese adult population. The prevalence of metabolic syndrome is increasing across world. It is important to examine the association between diet and metabolic syndrome. However, during the reading the manuscript several questions with regard to methodology as well as results interpretation have arisen and are mentioned in the following section.

**Major Compulsory Revisions**

1. According the Abstract, it says that ‘there is scarce evidence regarding the association between diet and metabolic syndrome’. I don't agree with that. Up to date, there have been increasing numbers of studies conducted to examine association of metabolic syndrome with dietary factors including dietary patterns. It might be true if you say, ‘there is scare evidence ~ in Portuguese adult population'

2. A priori approaches vs a posteriori approaches.

Both a priori and a posteriori approaches are based on evaluating diet as a whole dietary quality not focused on single nutrient/food items. A priori uses existing scientific knowledge, which you see Mediterranean or DASH diet, while a posteriori uses statistical methods such as principal component or cluster analysis to characterize dietary patterns. If you search literature with ‘cluster’ or ‘factor analysis’ or ‘dietary patterns’ or ‘metabolic syndrome’, you would find more studies than you expect.

3. Multivariate finite mixture models

In most studies to identify dietary pattern with a posteriori approach, factor or cluster analyses were used. The multivariate finite mixture models seem like the similar analysis with cluster analysis. Could you compare your results using two different methods, cluster or finite mixture models? To determine the number of cluster is very important in pattern analysis. Could you compare the patterns after you identify dietary patterns using two different methods?

It is very important to show your evidence what exactly advantages are if you use finite mixture models.
4. DISCUSSION section.
In discussion section, it should be to summary your key findings and compare your data with other data and interpret what your findings really mean and then you would conclude your findings with implications. Here, there is neither interpretation nor implication. Most parts should move into INTRODUCTION sections.

5. BACKGROUND
The second paragraph is a bit repeated. It describes the limitation of traditional single-nutrient approach but too much. I would recommend that you had better include the current situation of dietary problem? or metabolic syndrome in Portuguese adults.

6. METHODS
There are three sub-titles; study design/ data collection/ statistical analysis. I suggest this section to rearrange and add new subheadings, which are ‘the definition of metabolic syndrome’ from the data collection section and ‘dietary pattern analysis’ from statistical analysis.

7. LIMITATIONS
The authors argued that including participants who had been diagnosed MetS might have been weakened the association. Why don’t you do sub-analysis without them? Maybe you improve your findings. Now, you found no association at all after fully adjusted.

8. Please solicit help from a native English speaker to improve English and flow.

9. Please use consistent term. For example, dietary patterns were identified in men and women, but in the Results section male and female vs men and women both were used.

Level of interest: An article of importance in its field

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.