Reviewer’s report

Title: Dietary pattern and dietary total antioxidant capacity influence on the risk of dyslipidemia in Korean adults

Version: 0 Date: 15 May 2019

Reviewer: Tong Wang

Reviewer’s report:

In this study, the authors examined the association between the joint classifications of dietary pattern score tertiles and dietary TAC level tertiles based on 24-h dietary recall data from KNHANES study and the risk of dyslipidemia. Though the topic is interesting there are some issues to be improved before considering the publication.

1. Line 120: which questionnaire was used to measure physical activity? IPAQ or other questionnaires? The authors divided physical activity into two categories, please include a reference to support the criteria used.

2. Line 150: To determine the number of factors, the authors selected eigenvalues >1.25, but in remarks under Table 1 (line 56), it said the eigenvalues >1.20. And the scree plots can be added as supplementary material.

3. Line 167: In the regression model, the authors mentioned the correlation between educational level and household income level was high, only the household income level was selected as adjustment variable. In a questionnaire survey, it is hard to get an accurate household income response compared with education level, why not keep education level in the independent variables list rather than household income, maybe a sensitivity analysis based on different candidate independent variables or other biased estimation methods can be performed to avoid potential multicollinearity.

4. Line 169: The authors mentioned because alcohol consumption was reflected in the dietary pattern, drinking status variable was not selected for adjustment. Considering the dietary pattern was based on 24-h dietary recall, the alcohol consumption from it may not reflect the fixed habit of drinking. If there were items in the questionnaire intentionally focused on smoking and drinking status, is it more appropriate to use as adjustment variable and meanwhile exclude the alcohol consumption from the 24-h dietary recall to avoid potential multicollinearity?

5. Line 170: The authors used weighted approach to correct for the effect of missing values of the covariates. Do covariates including diet-related variables? If so, how to deal with the diet-related variables with missing value?

6. Some reference should be provided, such as:
Line 103-BMI is categorized in the tables by 4 criteria. However these criteria are not consistent with values published for Asian populations (Lancet Vol 363, January 10, 2004) Please include a reference to support the criteria used.

Line 107- Please include a reference to support the definition of dyslipidemia used.

Line 120- which questionnaire was used to measure physical activity? IPAQ or other questionnaires? The authors divided physical activity into two categories, please include a reference to support the criteria used.

Table 4- The results of this study, "oil, sweets, fish & other vegetables" pattern characterized by oil, sweets, seasoning, fish, and shellfish foods, but associated with lower risk of hypertriglyceridemia, whereas the "Grain, bean, vegetables & fruits" pattern associated with higher risk of HypoHDL-cholesterolemia. Please include a reference to support the results.

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An article whose findings are important to those with closely related research interests

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Acceptable

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