Reviewer's report

Title: Body Mass Index, Waist Circumference and Waist to Height Ratio can Predict the Presence of Multiple Metabolic Risk Factors in Chinese Subjects

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Reviewer: Maria Paula P Santos

Reviewer's report:

This paper describes an interesting topic about the use of important obesity markers to predict metabolic risk factors in Chinese subjects. I have some questions regarding the analysis and suggestions for improvement.

Minor Essential Revisions

Abstract background line 5# “these two markers can detect…” two or three??

Major Compulsory Revisions

It would be important to describe some information about the parameters that indicate the accuracy of anthropometric variables as indicators of Multiple Metabolic Risk. Authors could cite the work of Swets (1998) [1]. This author states that the Area Under the Roc Curve (AUC) should be interpreted according to the following guidelines:

- AUC # 0.5 indicates that the diagnostic of the test/measure is non-informative or it is equal to chance/guess;
- 0.5 < AUC < 0.7 indicates that the diagnostic is less accurate;
- 0.7 < AUC < 0.9 indicates moderate accuracy for the diagnostic test;
- 0.9 < AUC indicates high accuracy;
- AUC= 1.0 represents perfect diagnoses by the test.

Certainly, with these parameters in mind, some statements in results and conclusions should be taken with some regard. The authors generally accept the prediction of high blood pressure, high glucose, high triglyceride and the occurrence multiple risk factors made by BMI, WC, WHR and WHtR. However, no comments were made concerning the accuracy of the diagnostic done by the measures, as mentioned above. By carefully analyze table 3, it is possible to verify that is, at the best, moderate for BMI, WC and WHtR in the diagnosis of unfavorable for triglyceride; and moderate for BMI in the diagnosis of multiple metabolic risk factors, these occurring just for females. In males, the areas under the curves indicate poor accuracy for all measures, with values less than 0.7. Furthermore, no statistical meaning was found in the diagnosis of high glucose for WC and WHR, and high triglycerides for WHR in males; and in the diagnosis of high glucose for WHR in females. In these cases, it would probably be the same as guessing. Although, the main conclusion of the study, that BMI, WC and WHtR can diagnose multiple metabolic risk factors, remain the same.

**Level of interest:** An article of importance in its field

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

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests