Reviewer's report

Title: Metabolic syndrome in a cohort of Chinese schoolchildren: prevalence rates in different definitions and factor pattern analysis

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Reviewer: Constantina Papoutsakis

Reviewer's report:

This paper compares the prevalence of MS using 2 definitions: IDF and modified ATPIII and employs factor analysis to identify the features that play the biggest role in the MS.

The quality of the writing requires significant improvement. Grammar and syntax should be reviewed by a native English speaker who is familiar with the demands of writing a paper in English for a medical journal. Also, there are numerous spelling errors in the manuscript and Tables.

Having said that, the basic aim of the study is of high scientific interest. The authors should be commended for their advanced statistical analysis and should be given the opportunity to revise their written work.

All points are major compulsory revisions. These follow:

- Consider revising the title to reflect the outcomes of the factor analysis which are most interesting. The paper did not use different definitions of the MS, it only used 2. Given that the IDF requires that the central obesity criterion is met, it is already a given that the IDF definition will always produce a much lesser prevalence, so this is not really worth emphasizing a whole lot in the title or in the paper itself.

- Discussion: It is very long, and yet it is missing key elements. Re-write to shorten but also make an effort to include:

  - Several papers have been published on metabolic syndrome and adipokines in children. Authors of this paper should discuss similarities and discrepancies with available data in theirs discussion. For example, it has been suggested that associations between metabolic syndrome and adipokines in the age range of subjects of this paper are confounded by pubertal changes. This needs to be discussed. It is not obvious how the authors controlled for Tanner in their analysis. This should be explained in their methods in more detail.

  - The authors suggest adding the adiponectin/leptin ratio as one more feature of the MS in children. It is not clear why adiponectin/leptin ratio or either one on its own would be of added value. If a high WC identifies children at risk for MS, why measure adiponectin and or leptin? What is the scientific value? The authors should explain this in the discussion.
- The authors state in the discussion: #childhood MS should be considered a disease entity#. In general, there has been some recent controversies about the term "Metabolic syndrome" (Diabetologia, March 2010). Thus, the reviewer suggests that the authors address this matter in the manuscript.

Abstract.
Rewrite results of abstract. Confusing as written. It should be written in a way so that even when someone is not an expert in factor analysis can understand the essential findings that come out of the factor analysis. Also, report specific prevalence of each MS factor according to IDF.

Intro: contains several spelling errors. Include some basic literature on adipokines and MS in children to support the aim of your study.

Methods: Include citations for Tanner stage assessment. Be specific. How was this done? By pediatrician? Or by showing visuals or how?

- As stated in Methods, features of the MS were explored according to the International Diabetes Federation (IDF). Thus, the authors ought to include a detailed description of the IDF definition, and specifically the authors applied it (in addition to the citation that is already in the paper).

Statistical analysis: It is not clear what adjustments took place for confounding factors if any. For example, was the analysis adjusted for Tanner status?

Provide citations and a more detailed description for the PCA specifically.

- Result's section: The reviewer suggests to present only the #appropriate# results. Consider to focus only on results from children that are older than 10. This would be consistent with what is recommended.

The number of Tables is excessive. Is there a way to reduce the number of Tables?

Level of interest: An article of importance in its field

Quality of written English: Not suitable for publication unless extensively edited

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

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