Reviewer's report

Title: Association between obesity and metabolic co-morbidities among children and adolescents in South Korea: the 2007-2008 Korea National Health and Nutrition Examination Surveys

Version: 2
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Reviewer: Claire Zizza

Reviewer's report:

This manuscript describes the prevalence of childhood overweight and obesity in a population that has received little research attention. The comorbidities associated with overweight/obesity are also highlighted. The topic of this manuscript is extremely well suited to BMC Public Health audience. The authors should be commended for using a rich dataset with many biochemical parameters that is novel to a North American audience.

- Major Compulsory Revisions

1. The largest issue the authors need to address is the statistical approach to analyzing the relationship between overweight/obesity and comorbidities. The relationship between excessive adiposity and their associated comorbidities are widely accepted. The more relevant question for this population is at what level of BMI, do these conditions start to appear especially among diverse populations. Also it is always a drawback when researchers analyze a continuous variable such as BMI as a dichotomous variable. It would be informative to observe whether these associations are strictly linear or are there thresholds in this unique population. Or perhaps some other type of relationship?

2. Another large issue is the number of missing data. The authors need to examine this statistically and consider it in their discussion section.

- Minor Essential Revisions

Introduction

1. The introduction would benefit from a small description about the overall health conditions found in South Korea and perhaps a summary of the earlier survey findings.

2. In the purpose statements it is unclear what key components the authors are discussing.

3. It is also unclear how the results from this work will guide the development of effective programs for children’s health. This work highlights the need for programs and can help target interventions. Thus the second justification regarding targeting screening initiatives is appropriate.

Methods

4. Pg 5: ..by Helsinki. The authors are missing text here.
5. Pg 7-8: The definition of metabolic comorbidities would fit well in a table. It already appears to be a table in the text.

6. Pg 8: Why are the authors using both household income and the quartile of average household monthly income as control variables.

Results

7. Table 1 appears to be missing footnotes Atherogenic Index6?

Discussion

8. Also a discussion on the possible reasons why boys would more likely experience the associated comorbidities is needed.

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

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

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I have no competing interests.