Reviewer’s report

Title: Association between socioeconomic status and obesity in Chinese adults: a population based cross-sectional study

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Reviewer: Michel Vernay

Reviewer’s report:

It is an interesting manuscript dealing with the association between socioeconomic position and obesity (overall and central obesity) among adults in an economically prosperous region of China. It is well established in the literature that SES and obesity are inversely associated in developed countries, particularly in women, and positively associated in developing country. Due to its rapid economic growth, the case of China is particularly interesting. Moreover, the findings are based on a large sample of 16,013 participants. However, some points could be clarified in order to improve the manuscript.

Major Compulsory Revisions:

1. The authors should provide more details about the participation rate. They mentioned that 17,437 participants were recruited (study population section) and that data were completed for 16,013 individuals (results section), but they did not display the number of eligible subjects and the number of refusals (and potential reasons for refusing to participate).

2. In the characteristics of study population section, the authors mentioned that the participants (16,013) were comparable to those included (17,437), but they did not compare the participants to the eligible population. Were they comparable regarding educational level, marital status and individual SES? Was the sample representative of the Zhejiang general population? One should expect a description, even short, of the potential participation bias. Moreover, the potential consequences of the participation bias should be mentioned in the limitations section of the discussion.

3. Since, as mentioned by the authors in the introduction section, the Zhejiang province is an economically prosperous region in a developing country, it is not sure that the sample is representative of the Chinese general population (particularly regarding education, marital status and SES). It could be of interest to discuss this point in the discussion section, particularly regarding generalization of the findings to the Chinese population. If the sample is too different from the Chinese general population, it could lead to modify the title of the manuscript by adding “in a Chinese adults population”.

4. In the Measurements section, the authors should give more details on measurement devices (stadiometers and scales).

5. In the Statistical analysis section, and in the rest of the manuscript, it is unclear if the statistical analyses had taken into account or not the sampling process. The
authors should clearly mention that data were weighted to take into account the probability of inclusion. Did the Table 1 and the table 2 display raw or weighted data? This point is also unclear in the manuscript. If the studied sample was too different from the Zhejiang general population (see point 2), did the authors adjust data to take into account the observed discrepancies?

6. In the discussion section, the authors should recall that the prevalence of overall obesity observed in this survey is low compared to those observed in western countries.

7. The regression models took into account different covariates including fruits and vegetable intake, but they did not take into account the total daily energy intake, which is commonly done when data on energy intake are available. In the context of a developing country, this can explain the positive association between obesity and fruits and vegetable intake. This point should be discussed by the authors in the discussion, particularly in the limitations section.

8. In developed countries, several surveys have highlighted the existence of an inverse association between SES and obesity, particularly among women. In developing countries, the positive association seems to be more observed among men. This discrepancy might be discussed by the authors.

Minor Essential Revisions:
According to the reviewer, the authors should prefer the terms "men" and "women" instead of "males" and "females" in the manuscript.

1. Abstract – Results – 2nd sentence: the term "patrial" is unclear.
3. Variables and definitions section – 2nd sentence: replace “(…) in this study, we (…)” by “(…) in this study, we (…)”.
4. Model fitting results: The second part of the first sentence or the next sentence is useless.
5. Discussion section – 4th sentence: replace “Based on IDP cut-off (…)” by “Based on IDF cut-off (…)”.
6. Title of the tables: the authors should mention the year the survey was carried out.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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