Reviewer’s report

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

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Reviewer: Kathryn Backholer

Reviewer’s report:

This manuscript describes the prevalence of overweight and obesity in an economically developed region in China and attempts to estimate the independent association between individuals SES and obesity. I have a number of concerns about the manuscript.

Major Compulsory Revisions

• The authors claim that the relationship between SES and obesity may not be very well differentiated because few studies have controlled for multiple behavioral factors such as physical activity and diet. This appears to be the major novelty of the manuscript and what I consider to be a major limitation to the manuscript. It is very likely that physical activity and diet lie within the causal pathway between SES and obesity, and it is therefore a major over adjustment to include such variables in the model. Furthermore, the authors adjust for individual SES (I assume income?) and education in the same model, and conclude in the discussion that education does not show an independent influence on obesity. However, given the likely temporal sequence of education and income (ie. Education is likely to determine income), adjusting for income will likely underestimate some of the true impact of education.

• It is unclear why Caucasian cut-points are used for BMI (for international comparison) but Asian specific cut points are used for WC.

• There appears to be major differences in the prevalence of obesity when defined by BMI or WC. This discrepancy should be addressed in the discussion.

Minor Essential Revisions

• Introduction. The authors state that obesity rates have more than doubled since 1980 from 5% to 10% in men and 8% to 14% in women. Please state what year the doubled estimates are derived from.

• Blood pressure is not an anthropometric measure. Please revise.

• Please state survey response rate in methods. Without this information we have no indication as the generalisability of results.

• Please include the WC cut-point for overweight.

• Please provide a rationale as to why there was a focus on oil, meat and fruit and vegetables.

• Please state the variables that were controlled for in each model in the written
methods section.
• Please add units to BMI values throughout.
• It is inappropriate to refer to ‘hazards’ of overweight/obesity when logistic regression analyses were used. Please refer to ‘odds’ of overweight/obesity.
• Please add 95% CI’s when referring to point estimates in the results section.
• Individual SES and education are included in the regression models. I assume that individual SES is income? Education is also an individual measure of SES.

**Level of interest:** An article of limited interest

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

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

**Declaration of competing interests:**

none