Reviewer’s report

**Title:** Influences of socioeconomic factors on childhood and adolescent obesity by sex in Korea: cross-sectional analysis of nationally representative sample

**Version:** 2  **Date:** 19 December 2013

**Reviewer:** Eimear Keane

**Reviewer’s report:**

Dear authors,

I have taken some time to review your manuscript. I feel that the topic of SES and childhood obesity is of interest to those working in the area of childhood obesity but the self reported nature of the variables in your manuscript does reduce the level of interest in this paper. There are a number of limitations to this study and I have concerns regarding the validity of the findings. I feel that the manuscript requires some further work before it is suitable for publication.

**Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)**

**Aim of the study:** I think that the aim of the study needs to be defined better. One full paragraph in the introduction relates ‘parental interest in weight management’ and this is not incorporated in the aim. Why give so much detail on ‘parental interest in weight management’ if it is not important to your aim?

**Methods section:** It is unclear from the method section, did the parents provide consent or was it the children who provided assent to partake in the study? I also feel it is essential to include an ethics statement in the methods section regarding ethical approval of the ‘Korean Survey on the Obesity of Youth and Children’.

**Methods section “variables”:** I feel that it is essential to state that the height and weight variables are self-reported. This is currently not clear until the conclusion. Also, I don’t feel it is necessary to mention the WHO, CDC cut offs in the methods section as these do not relate to the methods used in this paper. Why were overweight and obese collapsed into one variable? The sample is large enough for two separate groups “overweight” and “obese”.

My understanding from the “variables section” is that all variables are child/adolescent reported? Please make same clearer.

Is the scale used to access “subjective economic status” validated? Please state same. Are any of the included questions validated?

The methods section states “Parental education level was divided into four categories” but only 3 categories are presented in the tables. Please address this issue.

**Methods section “statistical analysis”:** I feel that this section needs more detail. In particular, this section needs a justification regarding why table 4 is stratified by
gender and all other tables are not stratified. Are all p-values two-sided? For the backward elimination, were the variables removed one by one? If so, perhaps include some details regarding same in a footnote under tables 3 and 4?

The results section states “As well as significant variables, place of residence was considered as an independent variable as well, because it is usually used as a proxy measure for economic level in Korea, although it was not significant in the univariable analysis. Additionally, whether or not individuals lived with their parents and education level of the parents was considered as an independent variable for adjustment.” I would recommend moving this detail to the methods section under “statistical analysis”. I am unclear of the value of stating “For multivariable analysis, multiple logistic regression analysis was employed using variables with a p-value of less than 0.20 as independent variables”. Four variables from 5 with a p-value greater than 0.20 were then included in multivariate analysis regardless of the p-value?

Have you completed a chi-squared analysis to compare your SES variables? In the discussion you refer to the possible advantages/importance of asking adolescents to report “household economic status” but how well do these responses relate to the other SES variables? Some of this information could be reported in the text of the results?

Discussion: In the limitations, please state ‘parent body shape’ variables are also self-reported. I would be quite concerned that the findings of this study may be quite biased due to the self reported nature of the variables. It is likely that self reported height and weight and underreported. I am not sure if there is literature available regarding the ability of children/adolescents to accurately report parent size? The dichotomous nature of the “parents occupation/job” means that there is no differentiation between those who have professional jobs and those who have unskilled manual jobs.

I am also uncertain how comparable the “family affluence scale” is to the “household economic status” variable in your study. As you discuss the “family affluence scale” and the HBSC study in quite some detail, it would be good to know which of your SES variables relates best to this “family affluence scale”. Please make discussion of same clearer.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Referencing: Ensure to provide reference where necessary. For example, paragraph 5, sentence 1 in the introduction, needs a reference/s

Use of the term ‘conventional socio-economic variables’: this needs to be explained more clearly, perhaps this could be stated in the introduction, some details given on the limitation of ‘conventional socio-economic variables’ and what your study has to add

Headings in results: “Effects of SES of parents on obesity of children”: This does not compare fully to text under heading. Consider rephrasing heading

Tables: Variable labels vary between tables. Please be consistent
Writing: The use of the English language is not always appropriate. There are issues with (1) tenses (2) sentence structure and (3) the use of non-scientific phraseology throughout the manuscript.

Examples: The last sentence of paragraph one and the first sentence in paragraph 2 in the introduction need to be restructured. The point being made in the last sentence of paragraph two in the introduction is not clear.

Tables: Please ensure percentages add to 100%

Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)

Methods: Please remove ‘results’ from methods section. Example: “In total, we analyzed 4,706 male subjects and 3,849 female subjects” and “The total sample of 8,555 subjects showed a BMI range of 14.1 to 40.6 with an average of 20.3”. I feel that such details should only be given in the results section.

Results: General characteristics of subjects: shorten same, is repetitive of details in table 1. Alternatively, you could include some confidence intervals for prevalence overweight, obese etc just to make this section more detailed.

Variable: “Educations” is a proxy for age. This is important. Thus this should be stated

Discussion/conclusion: You state more research needed to find out what sort of SES questions are appropriate for children/adolescents but would you recommend the use of the SES variables in your paper for other studies?

I suggest that maybe some subheadings should be used in the discussion as it is quite long and needs some more structure.

Shorten paragraph 2 of discussion. It is very long and I think it is slightly off point, especially the last few sentences regarding GDP.

Perhaps your discussion needs to state that your findings should be interpreted cautiously due to the limitations of the self reported variables

Level of interest: An article of limited interest

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

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests