Reviewer's report

**Title:** Self-reporting and measurement of body mass index in youth: refusal, validity, and contributions of socioeconomic and health-related factors

**Version:** 1  **Date:** 9 May 2013

**Reviewer:** Georgia Frey

**Reviewer's report:**

**Major Revisions**

The introduction could be more succinct because the issue is quite simple and really doesn’t require a lot of explanation. Self-reported BMI is subject to error, but the degree of this error and factors that influence the error are unclear.

Also, the authors seem to be taking a “shotgun” approach to research by including so many variables in the analysis. Inclusion of all the variables needs to be better supported.

A power calculation is needed to support the appropriateness of the statistical methods with regard to the large number of variables.

The independence of all the variables is questionable. Some measure of multiple collinearity is recommended to determine if some variables can be eliminated.

The authors acknowledge the possibility of Type I error, but make not attempts to adjust for this error.

A big issue in the BMIm refusal that is not addressed is privacy and embarrassment. The authors do not specify if ht/wt measures were taken in a private area. This may have been part of the protocol referred to in the references, but that part of the methodology is not clear in the paper.

Adolescents are particularly vulnerable to be self-conscious and embarrassed. If measures were taken in front of peers, it is not surprising that some refused to be exposed to possible ridicule.

The conclusion needs to be more succinct and more “conclusive” rather than a restatement of the findings. For example, should future studies statistically compensate for a certain percentage of under- and over- reporting? Can methods be used to avoid measurement refusal? Should studies only use measurement?

**Minor Revisions**

The issue of refusal in measurement seems to be less of a concern and more of an artifact of the methods, as well as conducting research in humans. Refusal will always occur when testing humans.
Do not interpret the data with regard to under- and over-reporting as “high” (11% & 6%). Effect size should be used to determine the magnitude of the values. Also, 11% and 6% of such a large sample does not seem significant.

It is possible that adolescents have a difficult time reporting overweight because there is less understanding of overweight. Obesity and underweight are on two extremes of the spectrum and more recognizable. Overweight could be perceived as more variable and vague. Cognitively, adolescents do not understand things that are not “black and white”.

Socioeconomic, health-related and behavioral factors may play a prominent role in what?

Do not repeat statistical results in the discussion. The discussion is used for interpretation.

What is “inactive offspring”?

**Level of interest:** An article whose findings are important to those with closely related research interests

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

**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.