Reviewer's report

**Title:** Body Mass Index and Measures of Body Fat for Defining Obesity and Underweight: A Cross-Sectional, Population-Based Study

**Version:** 1  
**Date:** 16 March 2014

**Reviewer:** Anna Peeters

**Reviewer's report:**

This article addresses a topic of importance – how well does BMI capture % body fat across age and sex groups? However, the premise of the analysis is unclear to me. If BF% cut-offs are determined based on BMI cut-offs then doesn’t the prevalence according to each measure have to be very similar if the same population is used for both purposes?

Further it seems strange to derive %BF from BMI rather than the other way around when body fat is the measure of interest.

In addition, if the primary goal is to look at correlations between BMI and %BF it seems scientifically unsound to estimate missing %BF values using BMI.

The findings that such high proportions have exact agreement between BMI and %BF seem self-fulfilling given that one was derived from the other.

If the authors are interested to show that BMI may predict %BF less well in certain age and sex groups then I would suggest they do that instead, as this is an important message.

**Level of interest:** An article of insufficient interest to warrant publication in a scientific/medical journal

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I declare that I have no competing interests