Reviewer's report

**Title:** A cross-sectional, observational study examining associations of health, physical activity and weight status with motorised travel and transport carbon dioxide emissions

**Version:** 1  **Date:** 21 March 2012

**Reviewer:** Ian Roberts

**Reviewer's report:**

1. Is the question posed by the authors new and well defined?
The question is new, interesting, important and well defined.

2. Are the methods appropriate and well described, and are sufficient details provided to replicate the work?
No! The authors used something called path analysis - but I could find no reference to this method at all. It might be so well known that everyone knows about it but in that case it has completely passed me by. Some reference to the method - so that I can look it up and a brief description in the statistical methods section would be appreciated.

The authors used the raw data on BMI but categorised this for the purposes of the analysis. I am not sure about this for two reasons:
First, I think we forget that obesity and overweight are completely arbitrary categories and have no real scientific basis. BMI is continuous. I share Geoffrey Rose's concern that societies tend to demonise the upper tail of the distribution and call them deviant - whereas the population mean predicts the prevalence of deviance. Second, it is statistically wasteful of information (at least I think so).

I cannot see why they could not estimate effects associated with each unit increment in BMI.

3. Are the data sound and well controlled?
Possibly. This is a cross sectional analysis of a non-random sample of the UK population. The results shown some interesting associations but there is considerable potential for confounding and the direction of the effects (if causal) cannot readily be assessed. The low response rate limits the extent to which the results can be generalised.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
This is not ground breaking research but it is of interest. In my opinion the paper is too long and given the limitations in the data a short pithy report would be preferable.

5. Are the discussion and conclusions well balanced and adequately supported
by the data?
I would prefer the authors used a structured discussion section (e.g. as proposed by Smith in the BMJ) and structured their consideration of strengths and weaknesses in a more epidemiologically logical way.

6. Do the title and abstract accurately convey what has been found?
Yes.

7. Is the writing acceptable?
Yes but long winded.

- Proposed Revisions (which the author must respond to before a decision on publication can be reached)

Shorter pithier version with more emphasis on data limitations, explanations of path analysis and a consideration of modelling continuous rather than dichotomous data.

**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 know the first author she works in my department.