Reviewer’s report

Title: Theory of Planned Behaviour variables and objective walking behaviour do not show seasonal variation in a randomised controlled trial.

Version: 2
Date: 15 November 2013

Reviewer: Stacy Clemes

Reviewer’s report:

General comment
1. This is an interesting and well written paper which addresses an important topic of the influence of seasonality on walking behaviour. My major concern regarding the paper is that it appears data collected between 20th March and 22nd September are referred to as the ‘summer’ period while data collected between 23rd September and 19th March are referred to as the ‘winter’ period. These time frames combine spring and summer, and autumn and winter however, therefore reducing the strength of the comparisons with other studies which have only assessed individuals during the specific seasons. As highlighted below, I feel that more needs to be done in the paper to address this issue.

Specific comments and major compulsory revisions

Abstract
2. In the results section of the abstract the following text is repeated twice ‘although the belief that…’ this needs to be deleted.

Introduction
3. Page 6, middle paragraph, delete the word ‘in’ after ‘step’, so the text reads ‘step counts’ as opposed to ‘step in counts’.

Methods
4. Page 8, it is reported that ‘Data collected between 20th March and 22nd September was [change to ‘were’] coded as “summer”, and data collected between September 23rd and March 19th was [change to ‘were’] coded as “winter”’. These dates however include spring and autumn. It would be more appropriate therefore to rename your summer and winter variables as ‘spring/summer’ and ‘autumn/winter’. Alternatively, and perhaps preferably, would it be possible to re-run the analyses to compare the four seasons? In order to do this you will probably have to split your sample into two, one group will enable you to compare differences between summer and winter while a second group will enable you to compare spring and autumn.

The references you cite regarding the categorisation of winter and summer used only data collected during these specific seasons, in these studies winter was classified as 21st December to 20th March while summer was classified as 21st June to 22nd September (see Hamilton et al. 2008 for exact study dates). You
may also find the following paper, which examined different behaviours across all 4 seasons, useful when addressing this point: O’Connell S, Griffiths P, Clemes SA. (2013), Seasonal Variation in Physical Activity, Sedentary Behaviour, Sleep and Diet in a Sample of UK Adults. Annals of Human Biology, in press, doi:10.3109/03014460.2013.827737.

5. Page 9. I recommend replacing the word ‘sedentary’ with ‘inactive’ where you mention participants not meeting the physical activity guidelines. The term sedentary is generally used to denote sitting time and/or sedentary behaviour, while the term ‘inactive’ is the preferred term to describe people who are not sufficiently active to benefit their health. The same change should also be made in the discussion on page 17.

6. Page 11, at the beginning of the Statistical Analysis section, change ‘data was’ to ‘data were’. In addition, check the paper throughout for this error and replace where necessary.

7. Page 11. Within the Statistical Analysis section, am I correct in thinking that ‘walking time’ was derived from the pedometer, and specifically time recorded at an intensity level between 4-9 from the pedometer? I recommend briefly reiterating how walking time was measured in this section so it is clear for the reader.

Results

8. Page 13, add the units of measurement after the BMI data, i.e. kg.m^2

9. Page 13. in addition to looking at minutes walked, did you also consider looking at step counts and comparing step counts between the seasons? This would enable you to compare your results to other seasonal studies where the primary outcomes are reported in steps per day.

10. Page 13, did you collect any information regarding the weather during your periods of data collection? It would be nice to present in the paper this meteorological data to enable readers from other countries, with different weather conditions, to see this descriptive data. It may help put your results into context when relating them to such environmental conditions (as highlighted in the introduction and discussion). Historical meteorological data for specific UK regions can be obtained from the MET Office webpages.

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

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