Reviewer's report

Title: Availability of exercise facilities and physical activity in 2,037 adults: cross-sectional results from the Swedish Neighborhood and Physical Activity (SNAP) study

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Reviewer: Mitch J Duncan

Reviewer's report:

The study examined how presence of neighbourhood facilities are associated with participation MVPA and attempts to advance previous studies in the area by using objective measures of physical activity and facility location. The study also examines how time of year impacts on the association between exercise facility presence and MVPA. However I believe there are a number of issues that the authors should consider revisiting.

Major

The authors mention in the limitations that they did not consider presence of facilities in the work neighbourhood or along the commute route, however a limitation of the study is that total MVPA was used in relation to exercise facility presence in the home neighbourhood. This may lead to spurious associations, I suggest that a more useful way to analyse this dataset would be to delimit the accelerometer data included in the analysis to that when the participant was in the home neighbourhood area, or at least when they were not at work. Also there is no delineation of free and public facilities in the analysis or the type of facility, these are likely to impact on the observed associations.

Page 7. Description of included exercise facilities. What is the rationale for including public baths in a study examining how exercise facilities impact on MVPA.

Page 7. Exercise facilities excluded. How many facilities were originally identified and how many were excluded?

Page 7 exercise facilities. How many of these were free to access/use compared to those that were pay per use facilities? This may impact on the associations observed and may be an important issue in low SES areas.

Page 8. Accelerometer measure of physical activity. Were participants provided with a wear time log for the accelerometer? If so do the authors know if participants removed the accelerometer for any activities that may have been performed at the exercise facilities, and how was this information used in the processing of the data?

Also given the purpose of the study to examine how neighbourhood exercise facilities impact on MVPA, it is likely an important component of the study to only include accelerometer data from periods when the accelerometer was worn in
the neighbourhood (ie. When participants were in the 1km buffer zone) this would reduce the likelihood of detecting a spurious correlation between presence of exercise facility and MVPA. Particularly if participants travelled to or used exercise facilities outside of the neighbourhood area.

The analytic plan is also unclear in relation to the objectives of the study. Comments on this are made below however the authors state they tested interactions but there is no mention of the outcomes of this. And the analysis appears to ignore the clustered nature of the data and the sampling strategy that included participants from the four distinct neighbourhood types.

Page 10. Statistical analysis –
- please provide detail on why the cut points for group exercise facilities were selected.
- The study design selected individuals from within clustered areas in four different neighbourhood types. From the analysis plan described it is unclear how the clustering of individuals within neighbourhoods was dealt with in the model and also it is unclear how the area level factors of walkability and income/ses were dealt with.

Time of year also is examined in what appears to be a proxy for climatic conditions during the year, however too few details on the time of year are provided and it may be more useful to examine specific climatic conditions (rainfall, temperature etc) if this is the intent of the study.

Minor
Page 5. is there a typo in the data collection weeks on page 5? can the authors rephrase these time periods in a way that is more in line with the times of year used to describe when data collection occurred.

Page 6. Recruitment. does included in the recruitment procedure mean that all of these people invited to participate? what was response rate.

Page 7. Second sentence unsure if the definition of GIS is required.

Page 9. Weekly time spent in bouts of moderate to vigorous physical activity for participants with 6 valid days were extrapolated to 7 days using the mean of the six valid days (mean value for the 6 valid days multiplied by seven). – what is the rationale for this approach? What evidence is there that this produces valid estimates of MVPA bouts and not either under or over estimates?

Page 9. Time of year. Do these periods of the year equate to weather seasons or changes in climatic conditions in the study area?

Page 10. Socio demographics – what is a consumption weight and what is the rationale for including this?

Non-response analysis – please provide more detail in this section, were the 205 surveyed all of the non-respondents or a subsample.
Page 12. Results – MVPA “Neither time of year nor any of the other explanatory variables modified the association between availability of exercise facilities and time spent in moderate to vigorous physical activity (i.e., there was no effect modification” it is unclear what is meant by this statement and how it was tested in the analysis, are the authors referring to an interaction effect (or absence of an interaction effect).

Page 12. “None of the explanatory variables modified the association between availability of exercise facilities and meeting the physical activity recommendations.” As above it is unclear what the authors mean by this statement and how it was tested.

Page 14. The authors suggest that time of year, and in doing so appear to suggest that climatic conditions, do not impact on MVPA in the study population. Whilst time of year is an broad indicator of season would it provide greater insight into this possible effect if temperature (ave, min, max), and rainfall/snow were examined as possible indicators that may allow better examination of climate impacts activity behaviours.

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