Reviewer's report

Title: Patterns of physical activity and sedentary behavior in a representative sample of a multi-ethnic South-East Asian population: a cross-sectional study

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Reviewer: Emily Mailey

Reviewer's report:

This study describes the prevalence of physical activity, leisure-time exercise, and sedentary behavior in Singaporean adults. The research provides some interesting insight regarding physical activity behaviors in this population, and their relationship to a variety of socio-demographic factors. Although I have some concerns about the overall impact of this work, the study could be of interest to individuals who develop programs and policies to promote physical activity in Singapore or similar countries. Below I list a few of the primary strengths and weaknesses of the article, followed by suggestions for revisions. Because the scope of interest in these findings may already be narrow, I think the manuscript could be improved by further discussing the practical implications of the findings, to provide interested parties with potential “action steps” to influence physical activity behavior.

Strengths:
• Large, representative sample
• Analyses identified demographic subgroups who could benefit from targeted interventions

Weaknesses:
• Cross-sectional study
• Subjective measure of physical activity
• Weak measure of sedentary behavior (single item)

Major Compulsory Revisions
1. The paragraph discussing sedentary behavior (beginning on p. 4, line 59) is rather disjointed. It presents a series of statistics that reflect different levels of sedentary time in various populations, but it seems to me the paragraph could be better structured to build a coherent argument for the importance of studying sedentary time. There is a lot of strong evidence linking sedentary behavior with various health outcomes, which the authors could present. They could also identify some of the limitations of this existing research (i.e., what are some of the current “unknowns” that warrant further study?).

2. The authors should also provide some rationale for reporting total physical activity and leisure-time exercise separately. It makes sense to look at both
behaviors, but there is no discussion of the difference between them in the introduction.

3. Reporting prevalence rates in different socio-demographic groups first using chi-square tests, and then using regression analysis seems redundant. For example, in both cases age and income are associated with meeting physical activity guidelines. I may be misinterpreting or misreading the results, but it seems as though the two sections could be consolidated and reported in concert with each other (for example, report prevalence rates in the overall population and then compare subgroups in the regression analysis).

4. Overall, the discussion would be improved by including more discussion of the possible explanations for and implications of the results, rather than simply comparing the present results to statistics from previous investigations. For example, why might travel-related physical activity be so high among Singaporeans? How might our knowledge of this trend inform future intervention efforts? Similarly, when discussing leisure-time exercise, the authors present a series of prevalence rates from other countries, which they acknowledge are not comparable to results from the present study. It seems as though an approach that discusses the implications of low levels of leisure-time exercise would be more valuable to potential readers.

5. Several findings seem to be in an unexpected direction and warrant further discussion. For example, income was negatively associated with meeting physical activity guidelines, but positively associated with engaging in leisure-time exercise. The negative relationship between age and sedentary behavior also seems to be counter to other evidence that suggests adults become more sedentary as they age. The authors should acknowledge these discrepancies and provide possible explanations for them.

Minor Compulsory Revisions
1. p. 4, line 43: How is physical inactivity defined for these statistics? Not engaging in any physical activity? Not meeting the recommended physical activity guidelines? A brief clarification would help readers interpret these numbers.

2. In the methods section, please describe the outcome variables prior to describing the data analysis procedures.

3. Please clarify whether regular leisure-time exercise was quantified using the “recreation” subscale of the GPAQ.

4. On Figure 2, please clarify what the p-values mean (i.e., are they indicating significant differences between categories within each socio-demographic factor?).

Discretionary Revisions
1. Background, lines 40-41: This statistic could be updated or supplemented with
a more recent reference

2. The authors report different prevalence rates for married vs. unmarried adults for all three dependent variables. It would be valuable to address these differences in the discussion.


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

**Declaration of competing interests:**

I declare that I have no competing interests.