Author's response to reviews

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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Author's response to reviews: see over
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Dear Editor/s

Biomed Central Public Health (BMC Public Health)

Thank you very much for the opportunity to revise our manuscript “Patterns of physical activity and sedentary behavior in a representative sample of a multi-ethnic South-East Asian population”. We have addressed the reviewers’ comments in the revised manuscript highlighted in yellow. Below is our point-by-point response to the reviewers’ comment.

We hope that this manuscript is now acceptable for publication as an original primary research article in BMC Public Health.

Yours sincerely,

Dr Aye Mya Win

Research Associate

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Reply to reviewer # 1

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

General comments

This paper discusses the prevalence of physical activity and sedentary behavior in a poorly studied population. It also focused on socio-demographic determinants and, interestingly, it explored the contribution of different domains towards overall physical activity. If the objective of the papers are clear, their justification is not very well written and lack of connection between ideas. Why is it interesting to address this topic? For example, more information about health status in the country could be presented.

Talking about determinants is not adapted for a cross-sectional design. Correlates may be more appropriate.


We would like to thank the reviewer for the time he/she invested in reading our manuscript. We appreciate the reviewer’s kind words and valuable comments, and we feel that we were able to improve our manuscript based on his/her feedback.

We also added a short paragraph about health status of Singapore in the introduction. (Line 37-40)

We also changed the manuscript with regards to the use of “correlates” instead of “determinants” (Line 4, line 68)

Specific comments

• p3 line 31 what does means adequate levels of physical activity
  As suggested by the reviewer, we have changed the sentence “Regular moderate-intensity physical activity in adults can reduce the risk of...” (Line 31-32)

• p4 line 44 why reference 1 used to justify the prevalence of physical activity in South
East Asia (which part of the website is concerned?)

Referenced webpage is revised. (Reference 3)


The definition includes also the posture (sitting or reclining) and not only a low energy expense.

We have amended the statement as “Sedentary behavior is defined as any waking behavior characterized by an energy expenditure not exceeding 1.5 metabolic equivalents (METs) while in a sitting or reclining posture.” and referenced accordingly. (Line 52 – 54, reference 24)

- Methods: globally the methods are appropriate and well described but questions remain:
  - The survey was conducted between August 2012 and March 2013, how seasons were considered?

    Singapore is a tropical country with no seasons due to its close proximity to the Equator. Hence, seasonal variation was not considered for this study. We have added a short paragraph on justification about no consideration for seasonal variation in the methods session. (Line 72 – 75)

    - Exclusion criteria were defined including pregnancy, stroke or injury... (p6 line 94): how were considered functional limitations?

    Consideration on functional limitation was explained in line 85 – 88

    - GPAQ was used to measure physical activity but also sedentary behavior, this should be added in the methods, there is no information on how sedentary behavior was measured, but only the threshold used.

    As suggested by the reviewer, we have added a short paragraph about assessment of sedentary behavior by using GPAQ. (Line 108-110)

    - p7 line 110: why reference 24 is cited here and not 38 which is more appropriate?

      Changed accordingly (reference 31, line – 100)

    - p7: statistical analysis:
      - the statistical analysis is not so much detailed
      - there is no comparison between respondent and non-respondents.
Due to the study methodology, we were not able to collect detailed information from non-respondents. However, we applied sample weights to be representative of Singapore general population. (Line 155 – 157)

§ why these analysis were not done by gender?
§ interactions should have been tested?

We have tested interactions between exposure covariates*gender for all the outcomes. Most of the interaction tests were not statistically significant. Prevalence ratio of outcomes adjusted for socio-demographic characteristics was also estimated separately for males and females. However, the results did not change substantially and therefore; we decided not to present the results by gender. (Line 259 – 261)

§ Socio-demographic variables are briefly presented in the data processing. However, a specific paragraph with more details should appear in the methods.

As suggested by the reviewer, a specific paragraph on socio-demographic variables and how these were categorized was added. (Line 166 – 170)

§ Do the authors have calculated the correlations between physical activity and sedentary behavior.

Yes, we have assessed the correlation between physical activity and sedentary behavior. A short paragraph on this was added in the discussion section. (Line 338 – 340)

Meeting physical activity guidelines: the cut-off chosen corresponds to the moderate level in the GPAQ analysis guide. A point in the discussion could be added regarding the choice of this threshold and more precisely about the fact that this level should be in addition to the basal level of physical activity.

Based on the reviewer’s comment, we have added a point of discussion regarding choice of validated GPAQ cut-offs. (Line 344 - 346)

Regular leisure-time exercise: this variable was calculated using only data from the recreational domain of the GPAQ? Please precise it.

As suggested by the reviewer, we have revised the statement as “Regular exercise was assessed by adapting the classification from the American College of Sports Medicine released in 2011 using the responses from GPAQ recreation domain.” (Line 130)
• The results constitute a useful contribution to the field, particularly for the Singaporeans and more largely regarding the contribution of different domains towards overall physical activity. The results of the supplementary material are informative, why the authors have chosen not to present it?

> Based on the reviewer’s comment, we have added discussion on contribution of different domains towards overall physical activity. (Lines 302-307, line 310 - 316)

• The discussion and conclusions are adequately supported by the data. A point of the discussion should be added on the relation between physical activity and sedentary behavior.

> Added according to suggestion (line 338 - 340)

• References: reference 1 is not complete; in particular date of access to the website and here scientific papers could be cited. Some references are not complete, add doi: when possible, particularly for open access journal.

> We have changed accordingly.

Reply to reviewer # 2

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

Version: 1Date: 3 February 2015

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)

We would like to thank the reviewer for the time he/she invested in reading our manuscript. We appreciate the reviewer’s kind words and valuable comments, and we feel that we were able to improve our manuscript based on his/her feedback.

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?).

We have re-structured the background session on sedentary behavior. (Line 49 – 61)

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.

Rational of looking into both total physical activity and leisure-time exercise was stated in line 44-48.

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).

We think that including the information on prevalence of outcomes in different socio-demographic sub- groups could have more direct public health policy implications than by just presenting the prevalence ratio through regression analysis. Therefore, we
decided to leave the information in.

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.

We have added more discussions on explanation and implication of travel-related activity (Line 310 – 312) and low-level of leisure-time exercise (Line 289 – 294, line 313 – 316)

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.

We have discussed these findings in more detail (Line 317-324). We also acknowledged relationship between age and sedentary behavior, which may be different to that observed in other countries (Line 334 - 338).

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.

We have amended the word from “physical inactivity” into “insufficient physical activity”. (Line 35-36).

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

Outcomes variables were described before data analysis procedure. (Line 111-153)

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

The fact that regular leisure-time exercise was assessed by using responses from GPAQ recreation domain was clarified in line 130.
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?).

On figure 2, p-value indicates significant differences between variable categories within each socio-demographic characteristic. Information has been added in the figure.

Discretionary Revisions

1. Background, lines 40-41: This statistic could be updated or supplemented with a more recent reference1.

A more updated statistic is quoted. (Line 33-34, Reference 2)


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.

The different prevalence of outcomes by marital status is discussed in line 324-327.

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.