Author's response to reviews

Title: Association of self-reported physical activity patterns and socio-demographic factors among normal-weight and overweight Japanese men

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Author's response to reviews: see over
Dear BMC Public Health Section Editors:

Thank you very much indeed for reviewing our manuscript. I would like to resubmit the attached manuscript, entitled “Association of self-reported physical activity patterns and socio-demographic factors among normal-weight and overweight Japanese men,” for consideration for publication as a Research Article in the BMC Public Health.

The manuscript has been revised in accordance with the reviewers’ comments. We feel that in incorporating the suggestions of the reviewers, the revised manuscript has substantially improved.

Reviewer 1

We greatly appreciate your considered comments. In accordance with your suggestions, we have revised the manuscript as described below:

Major Compulsory Revisions (1):

[Reviewer’s comment 1].
I think the quality of the paper improved overall by the revision.
If authors present the data of interaction tests, I recommend the following structure of analyses to strengthen the design of the paper:
(1) Table 1;
(2) Table 2;
(3) PA-sociodemographic relationships in total sample (new, results of multiple logistic regression analyses);
(4) Interaction tests (Table 3) and
(5) PA-income relationship by BMI status (Table 4 only with income).
Is there any rationale for subgroup analyses with variables without significant interactions?

Answer 1: Thank you very much for this constructive comment. To augment the study design, we have conducted binary logistic regression analyses to examine PA socio-demographic relationships in the total sample; these results have been presented in a new table (Table 3). Thus, as well as adding Table 3, we have made the following change in the Methods (page 8, lines 1–3):
In addition, forced-entry adjusted binary logistic regression was conducted to examine the association between socio-demographic factors and PA (separately for total PA, walking, and MVPA) in the total sample.

We have also made the following changes in the Results (page 11, lines 1–9):

**Socio-demographic correlates of attaining the PA recommendations in the total sample**

The ORs for attaining 150 minutes of total PA, walking, and MVPA in the total sample are presented in Table 3 according to age, marital status, educational level, job status, and household income. As Table 3 shows, having a lower household income was negatively related to attaining 150 minutes of total PA (OR, 0.66; 95% CI, 0.46–0.94) and walking (OR, 0.67; 95% CI, 0.47–0.95). Table 3 also shows that men not in full-time employment were more likely to engage in 150 minutes of MVPA (OR, 1.97; 95% CI, 1.26–3.06) than those in full-time employment.

As a consequence, as well as adding the new results, we have added the following explanation (page 15, lines 12–18):

Regardless of weight status, men who had lower household income were less likely to attain 150 minutes of total PA and walking, which is consistent with previous findings [9,10]. In addition, men without a full-time job were more likely to achieve 150 minutes of MVPA. This finding has not been demonstrated in previous studies [9,10]. A possible explanation for this result is that job status may be related to whether men have available or limited opportunity to engage in MVPA (e.g., leisure-time PA, sports, and vigorous types of recreational activities) in their leisure time.

In addition, the results of the interaction tests are presented in Table 4.

Furthermore, following your constructive suggestions, only the results of the PA-income relationship according to BMI status are now presented in Table 5. Therefore, we have made the following change (page 13, lines 1–9 of the body text):

**Associations between household income and attaining the PA recommendations among normal-weight and overweight men**

The ORs for attaining 150 minutes of total PA and walking are presented in Table 5 according to household income. As Table 5 shows, no significant associations were
observed between household income and attaining 150 minutes of total PA among both normal-weight and overweight men. For normal-weight men, lower household income was negatively related to attaining 150 minutes of walking (OR, 0.63; 95% CI, 0.41–0.96). No significant associations were found between household income and attaining 150 minutes of walking among overweight men.

Following various changes in the content, we have also discussed the results based on subgroup analyses (page 16, lines 10–17):

Furthermore, in the subgroup analyses, household income was significantly associated with achieving 150 minutes of walking among normal-weight men, whereas no significant associations between household income and attaining 150 minutes of walking were observed among overweight men. Consistent with the findings of a Brazilian study [15], this result implies that socio-demographic correlates are less important in overweight than in normal-weight men and that other correlates of meeting recommended levels of PA may be more important for overweight men, such as psychosocial correlates and environmental factors.

And we have also revised the strategies and intervention approaches for normal-weight men (page 16, lines 22–24):

In addition, for normal-weight men, the promotion of daily walking (e.g., walking for transportation or recreation) should be targeted at those with a lower household income.

**Reviewer 2**

We greatly appreciate your insightful comments.

We very much hope that you find these adjustments satisfactory and that the revised version will be acceptable for publication in *BMC Public Health*.

Sincerely yours,
Yung Liao