Reviewer's report

Title:Socioeconomic status and work, travel, and recreation related physical activity in Japanese adults: a cross-sectional study

Version:1 Date:16 December 2014

Reviewer:Kenji Tsunoda

Reviewer's report:

General comments:
Major strengths of the study were large sample size and assessing physical activity domains. This study contributes to develop this area. However, because there are some concerns, some revisions would be necessary. I also recommend to use an English editing service.

Specific recommendations:

Abstract
Comment 1:
P2 “demographic variables (age, material status, household motor vehicles) were obtained” and Table 1.
The “material status” would be miswriting; right may be “marital”.

Background
Comment 2:
P4 “Moreover, it is important to examine the association between SES and PAD domains of work,” Since PAD is abbreviation of physical activity in each domain, the “PAD domains” would be miswriting.

Comment 3:
P5 “The association between SES and health behaviours varies according to sex;” This sentence needs a citation.

METHODS
Measurements
Comment 4:
P6 “three separate SES domains (work, travel, and recreational) performed” The “SES” would be miswriting; right is “physical activity”.

Participants and data collection
Comment 5:
P5-6 “A total of 8,284 potential respondents were randomly and blindly selected and were subsequently invited via e-mail to participate in the internet-based survey (response rate = 39.5%); participants with missing values (n = 57) were excluded.”

This sentence lacks some important information: response numbers and final analysis numbers should be included. For analysis number currently presented in Data analysis, I suggest to move here.

RESULTS
Comment 6:
P8-9 “Basic characteristics of the respondents”
The mentioned characteristics may be high volume. Please focus to important characteristics.

Comment 7:
Table 1. I suggest to calculate statistical gender difference in each item.

Comment 8:
Table 1. Sample numbers are different by independent variables. It is better to use same sample number between “age” to “education status”, because these variables would be commonly used via all analyses.

Comment 9:
P9 “The proportion of participants who reported household income (junior high and high school graduation, 2 years college degree or equivalent, and 4 years college or higher degree)”
The “household income” would be miswriting; right is “educational status”.

Comment 10:
P14 “Because the aim of this study was to examine the association between SES and domain of physical activity, a self-report questionnaire was used.”
Further kind explanation is needed to this sentence.

Comment 11:
Table 2 and P10 “Total physical activity was borderline significant, with greater activity in the high-income group (OR, 1.36; 95%CI, 1.00−1.84).”
For the P value of this OR, I recommend to indicate further decimal points (e.g., 0.0501 and 0.0498). Additionally, for the P value please add to main text.

Comment 12:
Conclusion
P15 “Although this study has some limitations, it does suggest that there are associations between SES and physical activity, but that the association varies
according to the domain of physical activity and sex in Japanese adults. Thus, lower SES was associated with more work physical activity, and less travel and recreational activity, and less total physical activity, and this was more pronounced in men than in women.”

This paragraph is lengthy. Please modify more clear.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.