Reviewer's report

Title: PHYSICAL ACTIVITY AND FITNESS ARE ASSOCIATED WITH VERBAL MEMORY, QUALITY OF LIFE AND DEPRESSION AMONG NURSING HOME RESIDENTS: PRELIMINARY DATA OF A RANDOMIZED CONTROLLED TRIAL

Version: 1 Date: 09 Nov 2017

Reviewer: Kazuhiro Harada

Reviewer's report:

This study examined the associations of physical activity and fitness with psychological variables among nursing home residents. Examinations among this population would be a remarkable point of this study. The findings would contribute to the research areas of geriatrics and gerontology. However, as indicated in "Major Comments", I have several concerns on this manuscript.

<Major Comments>

1. The rationales about second research purpose should be described in the Background section. The rationales about first research purpose were well described in the 3th paragraph of the Background. However, there is litter background information about mediating roles of using waking aids. They are helpful for readers to understand why this study examined the second research purpose. From the Discussions, the significant meanings of examining second research purposes would also be unclear. The results stratified by use of walking aid were not extensively discussed. If the second research purpose is not important, it should be removed throughout the manuscript.

2. Although dependent variables are continuous, why this study dichotomized them? This manuscript dichotomized them by the median split due to the lacks of standard cut-off values. However, the reasons why this study tried to categorize the participants into 2 groups. Generally, it reduces the information of data. In order to investigate the research purposes, using dependent variables as continuous ones, multiple regression analyses would be more suitable than logistic regression analyses.

3. Related with comment 1, did this study examine whether the the interaction terms of walking-aid use and physical activity or fitness on dependent variables were significant or not before conducting additional stratified analyses. If the interaction terms were significant, then stratified analyses should be conducted. Otherwise, if the interaction terms were not significant, statistical basis of conducting stratified analyses would be limited.
<Minor Comments>

4. It seems to be better to put sub-heading in the Results section.

5. This manuscript frequently used the terms "independent" and "independently". What do they mean? The regression models in this study did not employ the forced entry method. Most of the results were not statistically adjusted for all potential confounding factors.

6. For me, the meanings two sentences (page 11, line 17 to 22: The results of the current study . . . negative outcomes. Instead, . . . physical activity.) were not easy to understand. If possible, please revise it more easily.

7. The term "strength" seems to need adverbs such as "muscle" strength or "upper-limb" strength, or replaced with "physical fitness" or related terms.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable
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