

Peer Review Comments and Author Responses

Reviewer 1

1- *You could change the beginning to “Few studies address...”*

Dear reviewer, thank you for your valuable input. We have changed to the suggested approach.

2- *“... on cognitive function in the Brazilian population.” **

We agree with the reviewer that this is important information. We have made the change as suggested.

3- *Hi, maybe try to begin your sentences with other words other than “this”, to give the text more formality.*

We are sorry for our careless mistakes in the manuscript. According to your suggestion, we have revised this sentence.

4- *I believe the term is not adequately used. If by prevalence you mean percentage/relative frequency of males and females, then do not use prevalence because it implies a different epidemiological measure.*

Thank you for your suggestion, we have addressed this in our paper.

5- *Try to rephrase this sentence. Maybe “Males were present in the study more disproportionally than females (48% v 39%) and they also were positioned with a higher education level than females (12% v. 6%).” Higher education levels could work as a substitute for “with the university”.*

Thank you, dear reviewer, we changed it to the suggested way.

6- *Using the phrase “our replication study” sounds repetitive. Try to use synonyms to avoid this.*

Thank you for your very valuable comments, we have updated it to make it less repetitive.

7- *Add 2 more. As a suggestion, most articles have ≥ 5 keywords.*

We thank the reviewer for this comment. We added another two keywords.

8- *The introduction should have three different aspects: what’s known, the gap, and the response. I’ll delineate them for better clarification.*

Thank you for your comments and concerns, we have adjusted the introduction.

9- *Either use a comma and then “and”, or delete the and start right off with “its relationship...”*

We thank the reviewer for pointing this out. We have corrected the punctuation as suggested.

10- *However, your GAP should be more developed...*

Thanks for your concern. We hope that these revisions and the improved text will be satisfactory.

11 - *Maybe the main purpose shouldn't be replicating studies but also creating studies with new hypotheses based on physical activity and cognitive function. Even so, I understand that this project being a replication might sway your point of view to say that "replications of published data must be carried out in Brazilian populations", but also creating new studies can also help with this issue.*

You are right; thanks for your patient review; the phrase was changed.

12 - *The methods section needs to be developed more in several key aspects. First, the way the primary outcome was measured and analyzed should be expanded: how was exercise measured as a continuous variable? How was cognitive function calculated based on the ELSI study?*

Thank you for your very valuable comment. We stated better the primary outcome, how the exercise group was formed, and how the score for the cognitive function was used, we hope it is okay this time.

13 - *Good! But is replication study a type of study design? If not, then it should be clear whether you used the variables as a one-measure design (cross-sectional), multiple measures (longitudinal), review of the data, and subsequent analysis (could be a mini-review), etc.*

We acknowledge the ongoing discussion regarding study designs. We have clarified that the study was conducted as a cross-sectional design.

14- *As I understand, the ELSI study had data about the cognitive function of the patients. These data parameters were assessed to emulate the results of the ADAS-Cog of the 2008 study. If so, good! Try to put it more clearly, but good job!*

We thank the reviewer for their positive assessment and have clarified the emulation of the ADAS-Cog results in the manuscript.

15- *This approach would be complete case analysis (CCA), if so, please state it.*

We acknowledge the constructive nature of the comments, and we have added this detail.

16 - *Maybe use "median and interquartile range and mean and standard deviation were used for non-normal and normal data."*

We agree with your comment, and we have changed it as suggested.

17 - *Before, you mentioned that the primary outcome was the cognitive function of the patients assessed by the ELSI data parameters. However, now you're referencing that the primary outcome is the change in scores of cognitions in two different exercise groups. Also, the only two exercise groups mentioned were Group 1 -> moderate to vigorous exercise (exercise) and below moderate (no exercise) known as Group 2. This leads to*

confusion: Were the patients in group 1 subclassified based on their exercise tolerance/threshold or is this a new classification that was not mentioned in the methods section?

We apologize for the confusion. We have clarified in the methods section that the study evaluated differences between two groups: group 1 (moderate to vigorous exercise) and group 2 (no exercise).

18- I believe that by expanding on how the variables are used, some of the doubts and concerns raised here can be solved. Exercise was treated, as you said, as either no exercise or exercise, but no explanation as to how it was measured (based on a score, ordinal scale, etc.) was provided. If a simple linear regression was performed, then we can assume that both variables (cognitive function and exercise) were continuous. According to your appendix, I can see how cognitive function could work that way, but no supplementary appendix was provided for exercise. Please clarify this.

We appreciate the reviewer's detailed feedback. We have added more detail on how exercise was measured in the methods section.

19 - The wording of the primary outcome should be revised for clarification. It now stands that moderate to vigorous exercise (one group) had an association with cognitive function. But how was exercise measured? the number of minutes the patient could withstand?

We have revised the text to improve clarity and readability, we added more details in the methods.

20 - Instead of saying "score" try using the word "coefficient" since that's what the 1.53 and 2.19 mean. The change in coefficient means that those 3 covariates function as confounders of the true correlation. While the coefficient indeed changed and decreased, it still shows a certain degree of correlation between exercise activity and cognitive function score.

The results are from linear regression and the coefficient would be how much the score changes (dependent variable) in the function of the group (independent). We agree that using coefficient or score in this case wouldn't make a lot of difference, so we alternated. Thank you for the comment.

21 -Use the period after (Table 2). However, Table 2 does not correspond to the second model, but to the first model, the unadjusted.

We thank the reviewer for identifying this mistake. We have corrected the reference to Table 3.

22 - This sentence is very similar to the introduction. Should go.

We appreciate the reviewer's feedback. We have modified the phrase from the introduction.

23 - Try rephrasing the idea because it has already been used several times before.

Thank you for this suggestion. We have rephrased the idea to avoid repetition.

24 – Yes, but be careful of inferring a hypothesis not supported by your data... while physical activity was correlated, the degree to which it does is still unexplored.

The reviewer's comment raises a valid point, and we have added a sentence to clarify, that our results are evaluating moderate to vigorous exercise compared to no exercise, but we agree that we cannot correlate to the degree of exercise. o “Few studies address...”. Thank you for your valuable input, we have changed to the suggested approach.