Author's response to reviews

Title: Association between physical activities and school records in Korean adolescent students

Authors:

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Author's response to reviews: see over
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Title: Association between physical activities and school records in Korean adolescent students

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Version: 3 Date: 1 December 2011

Reviewer: Marsha Dowda

Reviewer's report:
The author did a good job of addressing some of the concerns of the reviewers. This includes the reanalyses to incorporate the sampling design.

Major
But, the manuscript still uses the term- school records. Although the author attempted to report to the reviewers what the term did not include, such as behavioral conduct. But nothing was added to the manuscript. What is meant by school records needs to be mentioned in the manuscript itself.

Thank you very much! I have added the paragraph that what is meant by school records in the Method (Dependent variables) and have changed term from “school record” to “academic performance” in the whole manuscript. And I have added paragraph of limitation in Discussion! Thank you!

Method

3. Dependent variables
This variable included only the assessment of academic performance of students via examination scores, not their behavioral conduct, attendance, and other achievements.

Discussion (Limitation)
Third, the academic performance did not incorporate behavioral conduct or attendance at school, and these factors might contribute to school performance.

Minor
Page 3- Is overweightness a word?

Thank you very much! I have changed the word from ‘overweightness’ to ‘overweight or obesity’. Thank you very much!

Page 4, line 5, there needs to be an s added to the word behavior.

Thank you very much! I have edited. Thank you!
Page 5, rather than family's economic status, it may be more informative to say *family income status*. 
Thank you very much! I have edited that word throughout manuscript. Thank you!

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.
Reviewer's report:

Major revisions

1) Both reviewers pointed out that the term “school record” is not clearly defined. While the authors responded that the survey did not measure school conduct, attendance, and achievement, only “school record,” this does not clarify the meaning of the term. Because this variable is the focus of the paper, without an understanding as to what is meant by “school record,” the value of this analysis is severely limited.

Thank you very much! I have added the paragraph that what is meant by school records in the Method (Dependent variables) and have changed term from “school record” to “academic performance” in the whole manuscript. And I have added paragraph of limitation in Discussion! Thank you!

Method

3. Dependent variables

This variable included only the assessment of academic performance of students via examination scores, not their behavioral conduct, attendance, and other achievements.

Discussion (Limitation)

Third, the academic performance did not incorporate behavioral conduct or attendance at school, and these factors might contribute to school performance.

2) Both reviewers noted that the author did not describe the body of literature that shows the relationship between student achievement and physical activity. While the author added a generic sentence citing the suggested references, this information has not been sufficiently incorporated into the Background. Notably, the author states that “only a few studies have examined the epidemiological evidence that indicates whether there is an association between PA and the school records of students.” This is not really true—there is a body of literature about this association and references the reviewers provided are merely examples of these types of studies.

Thank you very much! I have described my exactly opinion and have added recently reference in the manuscript. Thank you!

(Introduction)
PA was recently found to improve cognitive and memory functions [12-13]. These reports showed that regular PA might improve the academic performance of adolescent students at school. In addition, several studies have reported that PA enhances academic performance and outcomes [14-17]. However, while PA has beneficial effects on academic performance via increased brain activities, and some practical meta-analysis-based evidence associate PA with academic performance [18], there is no epidemiological evidence that indicates whether there is an association between PA and the academic performance of students. Furthermore, while some regional studies have analyzed this relationship in Korean adolescents, no nationwide study has been conducted in this regard. Therefore, this study was conducted in order to investigate the relationship between PA and academic performance in Korean adolescent students.


3) The author does not appear to have understood my previous comment on the Discussion. When I suggested that other aspects of PA, such as attention and alertness, might explain the association between PA and school records, I was not suggesting that these should have been included as variables in the study. Rather, I was suggesting that they might be explored in the Discussion as possible explanations for the results, just as the author does currently with brain and memory function. I do not think it is necessary to include the lack of information about attention and alertness in the limitations, but it should appear elsewhere in the Discussion.

Thank you very much for your kindly comment.

In this field of exercise prescription included PA, they have well-designed questionnaire which is the International PA Questionnaire (IPAQ) of WHO (Craig et al., 2003). Actually, Korea Youth Risk Behavior Web-based Survey consisted of questionnaire about PA based on the IPAQ.

You recommended that we might be explored in the Discussion as possible explanations for the results about other aspects of PA, such as attention and alertness. However, this study is based on epidemiological study. For this reason, we did not examine cause and effect, but only interrelationship PA and school record. Furthermore, we are strongly thinking about discussed other aspects of PA from our results is beside off the point. Please excuse our study! I am a really sorry! Thank you!

4) The Conclusion still simply repeats the findings. The author has not added any substantive implications. It would be more useful to readers if the author explained how schools, health care providers, etc. should ACT UPON the information learned in this study.

Thank you very much! I have added the implications in the conclusion. Thank you!

Implications:
Adequate PA can provide health benefits and play a vital role in weight control and reducing the risk of chronic diseases. Furthermore, this study shows that physically active adolescents are more likely to perform better at school. Health care providers are a trusted source from where families can obtain information about the benefits of achieving and maintaining an appropriate weight and engaging in sufficient physical activity. Similarly, school and community policies and programs can play an important role in PA management. Adolescents must be encouraged to engage in the recommended amounts of PA.

Minor revisions
1) I still think the Results in the Abstract are much too detailed and that the direction of the “school records” variable still is not clear.

Thank you very much! I have edited for compression in the Abstract (Deleted 95% CI range and p-value). And I have changed term from “school record” to “academic performance” in the whole manuscript. Thank you!

2) The author provides a lengthy response to my question about how the students could be confident that their surveys could not be linked to their names when the teacher was the person assigning the identification numbers. The response attempts to establish the legitimacy of the survey, but does not really answer my question.

Thank you very much!

1. When the student went to classroom, the teacher had prepared the box which has a lot of papers that written identification number, these identification number papers information were provided government administrator.
2. The student draws lots one identification number paper. And then the student went to computer lab.
3. The student input their own identification number on computer and then the student accessed the survey web page using their ID numbers, and was asked whether they were willing to participate.
4. The student who chose to join this study anonymously completed the questionnaire at their school.

Thank you very much!

3) Now that I understand that “unknown” responses to the questions on the parents’ education level were included in the analysis, I am not sure I agree with that approach given the fairly large percentage of students
who chose that option. Was it entered as an ordinal variable? If so, the author is effectively saying that “unknown” is a “lower” response than “middle school or lower,” an assumption that is dubious at best.

Thank you very much! The zeal for children's education in Korea is quite high. For this reason, if the parents education level was elementary school or lower, they never tell about own education level to their children. Therefore, I am certainly sure that ‘unknown’ means “elementary school or lower” of their parents education level. However, because KYRBWS-V was conducted this question of exactly contents are “(1) unknown, (2) middle school or lower, (3) high school, and (4) college or higher” that is ordinal variable; we cannot change the original described content. For this reason, we just had described original content inside KYRBWS-V but not change to “(1) elementary school or lower”. Please forgive us. Thank you very much!

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Not suitable for publication unless extensively edited

I am a really sorry and confusing now! We already had twice time extensively edited via professional editing company. Nevertheless, because the reviewer wants to extensively edit this manuscript for publication, we have extensively edited one more time. Please! We would like to pass for publication this time. Thank you very much! And I have attached third extensively edited file via professional editing company.

**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

I wish your journal tremendous success in everything your journal do. Thank you very much always!