Reviewer's report

**Title:** Physical activity, Cardiorespiratory fitness, and the Metabolic syndrome in Adolescents: A Cross-Sectional Study

**Version:** 1  **Date:** 14 April 2011

**Reviewer:** TRANG HHD NGUYEN

**Reviewer's report:**

Reviewer: NGUYEN HOANG HANH Doan Trang

Reviewer's report:

Suggestion: Minor Essential Revisions.

1. Is the question posed by the authors well defined?
   Yes

2. Are the methods appropriate and well described?
   The methods are appropriate but the description is not clear enough and needs to modify in order to answer the following points:
   - We don’t know the rationale for sample size calculation (e.g. why 456 adolescents in 7 schools were selected). The sampling procedures are not clear as well, this should be more described. I am not certain about the proportion of schools in urban, suburban and rural areas and if weighted methods are needed to address this issue. The authors should provide more details regarding this point.
   - Describe the process of administration of the questionnaires, eg self-completed in classroom setting, researcher led etc
   - How was age recorded, e.g. self-reported? Or data collection included date of birth and date of measurement, and the calculation was decimal age, please clarify?
   - It is not clear determine which exercises had moderate to vigorous intensity (# 3 MET). Did the authors base on the Ann Worth’s Compendium? This should be clarified.
   - The authors need to describe more on statistical tests used to define the significance.

3. Are the data sound?
   Not clearly
   I don’t feel comfortable with the word “parameters” here. Are they the values?
   In the method part, the authors pointed that “Since there are no prescribe thresholds for aerobic fitness, the lowest and highest tertiles of these two variables were used in the analyses” but in the results not much text was
described about aerobic fitness, and until the end of the manuscript I am not quite sure which levels are the lowest, the middle and the highest tertiles of aerobic fitness.

The description in result part is too short providing very little information. Furthermore, one of the main outcomes of this study is the prevalence of metabolic syndrome among adolescents were not described in details, I even can not see the prevalence of metabolic syndrome in each gender and age group (if applicable).

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?

All titles of the tables need to be improved. Table 1 needs footnotes to explain the statistical test used and also meaning of the abbreviation. The presentation of “,000” should be replaced by “<0.0001” The same for Table 2, please indicate the test used to get the p-values.

5. Are the discussion and conclusions well balanced and adequately supported by the data?

Yes, but the authors should recognize that this work is based on a cross-sectional study and cause-effect cannot be determined. In some instances, “risk” and “relationship” is used inappropriately. Because of the cross-sectional design of the study, the conclusions can only indicate possible associations and not explain entirely how the biologic processes are developing.

In this study, sedentary lifestyle was not mentioned and also discussed. I just wonder if the screen time including computers, TV and videogames were considered to be collected in this study.

The differences in the prevalence of metabolic syndrome should be discussed in light of different definitions applied making the comparison difficult.

6. Are limitations of the work clearly stated?

Not entirely.

Firstly, the limitation of a cross-sectional study was not mentioned. Reverse causality could be more explored (i.e. obesity causes physical inactivity - physical inactivity causes obesity).

Secondly, the limitation coming from the lack of a standard definition for the metabolic syndrome in adolescents should be discussed and compared. In fact, the authors realize the study limitation but it was explained by applying adult definition to a pediatric population. I am not quite sure why ATP III’s definition was selected to use while other definitions such as IDF’s which were modified to use among adolescents were not applied.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?

Yes
8. Do the title and abstract accurately convey what has been found?
Yes

9. Is the writing acceptable?
- English editing is needed. The authors should check the spelling throughout the manuscript, especially the word “Waist circumference”
   I would recommend that the authors have their manuscript proof read by a professional English proof reader.
   - The word “sedentary” used to define for the threshold <60 mins/day is confusing. I would suggest to use “inactive” because sedentary lifestyle should be related to screen time (computers, TV and videogames) rather than having physical activity <60 mins/day

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

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

**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