Author’s response to reviews

Title: Correlates of objectively assessed physical activity and sedentary time in children: a cross-sectional study (The European Youth Heart Study)

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Author’s response to reviews: see over
Dear Editor,

Please find enclosed the revised manuscript (ID 6149099692455517) titled “Correlates of objectively assessed physical activity and sedentary time in children: a cross-sectional study (The European Youth Heart Study)”, together with a point-by-point response to the reviewers’ comments. The comments from the two reviewers were helpful and have been carefully considered when revising the manuscript.

The manuscript has been edited according to most of the comments by the reviewers. Major compulsory revisions requested from both reviewers mainly concerned the introduction part. We have now substantially rewritten the introduction in order to provide a clearer and stronger rationale for focusing on the selected behavioural correlates of physical activity and sedentary behaviour. Parts of the methods section concerning handling of data has been clarified and the discussion has been revised throughout in order to minimize repetition of results, as commented by one of the reviewers. A statement on compliance with the Helsinki Declaration on biomedical research and ethical approvals has been added.

We appreciated the comments and suggestions on language revision from both reviewers and have edited the manuscript accordingly.

We are looking forward to hear about the evaluation of the revised manuscript in due course.

Sincerely yours,

Andreas Nilsson
Point-by-point response

Reviewer: Jo Salmon

Major compulsory revisions

Introduction

1. Introduction needs to be substantially rewritten. A clearer rationale for focusing on behavioural correlates. Why those were selected and how result on associations between the correlates and PA and SB can assist the development of future interventions

Reply: We have now rewritten the introduction aiming to provide a stronger rationale for focusing on the chosen correlates in the present study. This includes a brief description of correlates at different levels and thereafter narrowing focus on behavioural correlates for leisure time physical activity in particular. We have also tried to clarify the importance of studying these potential correlates of PA and SB in relation to the making of appropriate PA policies and programs for school-aged youth.

2. Was a theoretical framework used to guide selection of correlates.

Reply: The rationale for the study is based on the body of evidence concerning health benefits of increased PA and the probable need of promoting healthy lifestyles in children. In turn, selection of correlates of PA and SB have been guided by previous research on leisure time activities suggested in influencing on PA levels in children and thus possible targets for PA interventions. Included in the rewritten introduction we argue for the importance of these selected correlates on basis of previous work.

Methods

3. More information about accelerometry data in the methods. EG how was percentage of time calculated. Report how many met the criterion (600 min/day) and how many had 3 and 4 days of measurements.

Reply: We expressed time in SB and in MVPA as average time per day in relation to average monitor wear time per day. This is now clarified in the methods section. We have also reported the percentage of children wearing the monitor for 3 and 4 days, respectively. Although differing in number of days they wore the monitor, all who were included had at least 600 minutes of wear time every day.

4 to 6.

Reply: As the introduction has been revised throughout, the contents related to comments 4 to 6 are no longer part of the introduction.
7. The Kowalski et al reference in relation to the stated contents of the questionnaire used in the European Youth Heart Study

Reply; The physical activity questionnaire for older children validated by Kowalski et al was used as a model when designing questions assessing PA behaviours. The questionnaire used in the European Youth Heart Study was multifaceted and aimed to assess variables that go beyond both the scope of the present study and the cited study by Kowalski et al. Thus, we agree with the reviewer’s comment and have rewritten the sentence to clarify this.

8. How were children’s age and sex collected?

Reply; Age and sex were collected from official school listings.

9. What are the ‘physical characteristics’ and was differences examined by mean percent time

Reply; We have changed ‘physical characteristics’ to ‘height and weight’. We have also clarified that it is mean percent time.

10. Adjusting analyses for clustering at the school level.

Reply; We agree that adjusting for study location is not the same as adjusting for clustering at the school level. Unfortunately, information on schools is not available in the pooled database (including all participating countries), which prohibits us from reanalyse our data using a cluster approach.

11. How was height and weight collected

Reply; A sentence about collection of height and weight has been inserted in the methods section.

Discussion
12. Reduce repetition of results in discussion.

Reply; We have revised major parts of the discussion in order to minimize unnecessary repetition of results.

13. Table 1 needs a more descriptive title

Reply; Title of Table 1 (during revision changed to Table 2) has been revised according to suggestions by the reviewer.

14. The manuscript could benefit from English language editing throughout
Reply; We appreciate the comments on language revision and have edited the manuscript accordingly.
Reviewer: Trish Gorely

Major compulsory revisions

Introduction

1. Concerning paragraph on excessive media use

Reply: We have revised the introduction throughout and this paragraph is no longer part of the introduction

2. Concerning the point to do with self-report instruments

Reply: We agree with the reviewer’s comment that detailed descriptions of PA behaviours include more than assessment of movement patterns. We have revised this paragraph to clarify that self-report can give a picture of the major behaviours children engage in. However, we believe that an objective method should be regarded as the only valid option when aiming to assess number of minutes spent at different intensity levels of PA in children.

3. Concerning paragraph on active commuting. Do we want to dismiss it?

Reply: We agree with the reviewer and did not aim to dismiss the potential benefits of active commuting on health. The conclusion given in the manuscript was based only on the lack of association between time in MVPA and active commuting. While this conclusion remains, a sentence suggesting the potential benefits of active commuting on total physical activity level has been added.

Minor essential revisions

Comments 1 – 12, 15 – 18, 22 – 29, and 31 all relate to language editing

Reply: We have revised the manuscript according to all reviewer’s suggestions

13. Include p-values for the comment that there were no differences in height etc

Reply: We have inserted p-values for height and weight between study participants and those excluded.
14. Who approved the study locally

Reply; The study protocol was approved by local medical research ethics committees of the 4 study regions: Regional Committee for Medical Research Ethics, Oslo, Norway; Ethics Review Committee on Human Research of the University of Tartu, Tartu, Estonia; Ethics Committee of University of Madeira, Madeira Island, Portugal.

19. Description of the sample would be better presented in a table

Reply; We now present mean height and weight by age and sex in Table 1.

20. Describe gender differences in self-report PA variables

Reply; We have extended the result section with descriptions of all significant observations.

21a. Analysis of associations: Could you please report the data that goes with these associations.

Reply; As the aim was to investigate associations between correlates on an outcome we believe reporting p-values in case of significant associations, together with the proportion of variability attributable to the factor (partial eta squared) as informative to our purpose. For information on results on percent time in MVPA and sedentary (which we believe the reviewer refers to) Table 3 shows this by age and gender, to add to the database on children’s patterns of PA and sedentary time.

21b. What measure of effect size is reported and how should it be interpreted.

Reply; The measure of effect size presented is partial eta squared $\eta_p^2$ (derived from ANOVA analyses in SPSS), which describes the proportion of total variability in the dependent variable (e.g. time in MVPA) attributable to the factor (e.g. organized sports). We have included a sentence about the measure of effect size in the methods section.

30. What do you mean by ‘non-differential misclassification’?

Reply; Individuals in the present study may be misclassified in terms of ‘exposure level’ of the self-reported variables. By ‘non-differential’ we mean that the misclassifications may go in either direction independently of the outcome variable (time in MVPA and SB). Therefore, a dilution of the true magnitude of association between the dependent variable and the factors would be expected.