Reviewer's report

Title: Trends in screen-time behaviours and moderate-to-vigorous physical activity among German adolescents 2002-2010

Version: 1 Date: 10 February 2014

Reviewer: Tim Olds

Reviewer's report:

This study provides secular trend data on German adolescents' physical activity and screen time. It draws data from the long-running HBSC study, uses a very large sample (about 17,000), covering a 9-year period (2002-2010). The response rate is very respectable. The statistical analysis is careful, conservative and appropriate. The question addressed is of considerable interest and importance. The findings are consonant with recent studies showing (a) a plateau in the prevalence of overweight and obesity; (b) a bottoming-out of the decline and slight improvement in children's fitness levels; (c) small increases in children's physical activity levels. The authors acknowledge the shortcomings of the survey methodology, particularly in relation to not capturing videogame playing, but even so the data are of great interest.

(2) Minor Essential Revisions

• I think the authors are too quick to call for screen time interventions. Different kinds of screen time have different effects on different outcomes. For example, sedentary time is associated with BETTER academic results, and TV appears to be the main culprit in the screen time-obesity link. The authors should point out that screen time should not be considered as a homogeneous activity.
• I did not understand the sentence beginning "The ample was slightly reduced ..." What do these numbers mean?

(3) Discretionary Revisions

• The stand-out result is the rapid increase in girls' computer use. This has not been adequately addressed in the discussion. Why has there been such an increase? Do you think it is the rise of social media, with a greater uptake by girls? Are there trend data on facebook use by German teenagers differentiated by sex?
• I wonder if the authors have considered looking at subgroup analyses by BMI? Sex and socio-economic status have been considered. It would be interesting to know if there are differences across SES levels.
• In adult surveys, there has been attention paid to the idea of "interpretation drift" — i.e. people interpret notions such as physical activity differently over time (for example, there is a greater tendency nowadays to count incidental walking, eg walking to the shops, as PA, because of advertising campaigns stressing the health benefits of walking, whereas it may not have been included in the past).
wonder whether it is possible that a similar trend is occurring with kids?

- p5 para5 line1
  Replace "constantly" with "consistently"

- p6 para2 line8
  Replace "number computers" with "number of computers"

- I would like to see some comment about how recent developments in portable media devices (smartphones, tablets) may have affected the results. Has screen time shifted from TV and PCs to these other devices in this 9-year period?
  - p8 line3
    Increase? Should this be decrease?

- p9 line1
  I think "times" should be "types"

- p9 para3 line6
  Replace "times" with "time"

- p9 para3 line9
  Replace "as" with "than"

- p11 para2 line15
  Replace "have" with "has"

**Level of interest:** An article of importance in its field

**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