Reviewer's report

Title: Testing compliance to WHO guidelines for physical activity in Flanders insights from time-use diaries

Version: 0 Date: 18 Jul 2018

Reviewer: Finaba Berete

Reviewer's report:

General:

This study explores the compliance with the WHO physical activity guidelines in Flanders using time-use diaries.

Nowadays, the role of physical activity to the prevention of non-communicable diseases is well established. Therefore, to reduce the burden of these non-communicable diseases and for effective public health surveillance purpose, it is important for health authorities to determine the proportion of people that are physically active. From this perspective this is a valuable study as it assesses beyond the prevalence of physical activity in Flanders, but the proportion of people who meet the physical activity guidelines (WHO guidelines).

However, in order to be suitable for publication some points in this manuscript need to be improved and/or clarified.

Title:

This study analyses the compliance with the WHO physical activity guidelines in Flanders. However, this didn't actually appear clearly in the title. So, the title could be more elaborated.

Authors affiliations:

"1Research group Interface Demography, Department of Sociology, Vrije Universiteit Brussel, Pleinlaan 2, 1050 Brussels, Belgium".

I assume the 1 must be 2.

Introduction:

In my view, this section is too long. it could be shortened and better structured.

In fact in this section there are some repetitions, e.g. the objectives and this part could be more elaborated and more structured.
In my view it is essential to provide some information on the association between prevalence of physical activity and sociodemographic characteristics to contextualise the study.

Objectives are stated earlier, in the middle of the introduction before the end of the literature review. See "The specific aim of this paper is to analyze, by means of time-use diaries, to which extent these two WHO PA guidelines for the age group of 18-64 years old are met in the Belgian region of Flanders."

I have the impression that some statements/words have been omitted and this makes some passages unclear. E.g. "Time-diary data have a clear advantage over survey data to measure physical activity. For example, Adilson et al. [9] tested compliance with the WHO guideline based on a single item of the European Social Survey: "On how many of the last 7 days did you walk quickly, do sports, or other physical activity for 30 min or longer" .....And what the authors concluded?

Method

Even though reference is made to a paper that describes the methodology of the data collection, some more methodological characteristics need to be mentioned in the article:

- Which MOTUS data is used in this survey as there are more than one MOTUS surveys mentioned in the reference paper? Data collection period?
- What is the sampling frame of this survey?
- "In total, 3260 respondents filled in a 7-day time-use diary" out of how many (denominator)? What about the representativeness of the study population?

As indicated in the method, seasonality can impact physical activity patterns. So, it is important to spread out data collection over the whole year as presented here. However, in addition to this precaution, it is also important to consider this seasonal effect when analyzing the data.

This paragraph is unclear. Please consider a rephrasing.

"Previous research showed that, compared to the Belgian Labour Force Survey, there is a small underrepresentation of lower and middle educated and a small overrepresentation of the higher educated. Furthermore, women are slightly overrepresented and the age group of 65 -75 are underrepresented [12]. However, respondents over 65 years old were excluded from our analyzes as the WHO uses different PA guidelines for this age category".

Thera are redundant justification about the choice of gender as stratification variable. See last paragraph before indicators
Indicators: why did you used educational level and occupation together? Multicollinearity have been assessed?

Details on participants background characteristics could be removed here and presented in a table in the results section.

"Next, multivariate logistic regressions are applied to test compliance to the guidelines, stratified by gender. Analyzes are shown in separate models for men and women".

As the authors already mentioned that the analyses are stratify by gender, I think the second phrase can be removed unless reference is made to separate models with different covariates.

"The tables show the regression coefficients (B), the exponentiation of the B coefficient (exp(B)) or the odds ratio (OR), the standard deviation of those coefficients (S.E.), the Wald chi square test value (Wald) and the according significance level (Sig)."

The statistics presented here can be summarized otherwise and presented more clearly in the tables, e.g OR and their 95% CI (and/or P-value) rather than beta, exp(beta), etc.

Results

Also this part can be shortened because there is no need to describe all the data already presented in the tables. It is only useful to highlight some relevant results here.

Table 1 and 3: title could be reformulated as for example: Estimated compliance with WHO physical activity guidelines for health benefits in Flanders, by gender in 20XX.

Why Fisher's exact test? Traditionally, this test is used for small sample sizes, although it is valid for all sample sizes.

If percentages and counts are presented in the same table, it is better to put first the percentage, then the N.

In Tables 2 and 4, I suggest presenting only ORs with either the 95% CI and/or P value.

The phrase: "This can possibly be explained by the fact that occupation is taken into account in these multivariate model." could be moved to the discussion section.

The Nagelkerke $R^2$ are too low (max 8%). This might indicate that the model didn't fit well the data and needs to be more complex than presented in this paper, or it needs additional nonlinearities and interactions to satisfactorily represent the data.

I would strongly advise to extend the model by including additional relevant covariates (e.g. health status, …) in order to enhance it.
Discussion/Conclusions:

There are several repetitions of the results. The conclusion should not be reduced to a repetition of the results.

More emphasis should be led in the discussion of the findings in comparison with those of previous studies. Furthermore, the added value of the study and its implication in terms of public health are not sufficiently highlighted.

Level of interest
Please indicate how interesting you found the manuscript:

An article of importance in its field

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors'
responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license ([http://creativecommons.org/licenses/by/4.0/](http://creativecommons.org/licenses/by/4.0/)). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal

Do you want to get recognition for reviewing this manuscript? Add a record of this review to Publons to track and showcase your reviewing expertise across the world’s journals. Signing up is quick, easy and free!

Yes