Author’s response to reviews

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

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Version: 2 Date: 10 Feb 2019

Author’s response to reviews:

Reviewer #1:

The authors have made changes which improved the manuscript. Most of my concerns have been addressed. Thanks for the corrections. However, I still have some minor comments.

In the method section, p.10, line 52: 90% of those … --> should be ninety percent of those …

Authors:
This has been changed as suggested.

Reviewer #1:

“In the results: thanks to have taking into account seasonality and self-perceived health. However, nothing are said about these variables in the results and/or in the discussion.

These variables should appear at least in the results. Please specify if you voluntarily chose not to show them in your tables (because tables would be too long), you can add the full table with all the variables as additional files.”
Authors:

We voluntarily chose not to show them because we addressed these as control variables and also because the table would be too long. We do agree that we should show the results and will do so as additional files.

The month of the year was significant, taking into account the whole variable. However, there was no clear effect to be seen throughout the months.

When looking at the results, it does seem to show that people are less physically active in the winter months, but we feel that the effects are too unclear to write these conclusions in the paper. For future research, we have requested data from the Belgian meteorological institute that we might combine with the hometown of respondents to control for weather rather than month of the year. However, since we don't have this data yet and are unsure about this implementation, we also chose not to mention this as a suggestion for future research.

Reviewer #2:

“it would be interesting to know if the time use diaries allow the pratician to know if morning are better than evening or afternoon ? or if week end are more active than week ? etc… what are the exact advantages for health professionals ?”

"Moreover, it is very suprising that authors focussed only on physical activity level and not on sedentariness also. In fact sedentariness is another important and recognized factor of adverse healths. It is nowaday more accepted that people could be considered physically active (>150min/week) but in a same time sedentary … thid data needs to be reported as it is very relevant.”

Authors:

We agree that both a focus on sedentary activity on the one hand, or a focus on time of the day/week on which PA is performed are interesting topics of research. However, the above suggestions are beyond the scope of this paper. This paper want to show a new method of measuring PA (time-use data), and uses this method to test compliance to the WHO PA guidelines.

We added in our discussion:
“It should be noted that the WHO guidelines on PA shouldn’t be the only focus for interventions and future research. Sedentary activity has also been shown to have associations with health outcomes, independent from PA levels.”

Reviewer #2: “The threshold of 300 min and it is importance to study it is not very well explained and need to be more discuss in the background question.”

Authors:

The WHO PA guidelines for health benefits that we are testing suggest that 150 minutes of moderate PA or equivalent per week provide health benefits. The WHO PA guideline for additional health benefits suggests 300 minutes of PA or equivalent per week. For a full overview of the suggested health benefits see: “Global recommendations on physical activity for health”, which is referenced in the paper.

Reviewer #2: “In addition, the authors did not discussed very well about the discrepancies from their results (>80%) and those of previous studies (~50%) regarding adherence level ???”

“P3 line 26-28, the statement about the different results need to be develop about what is the problem or the impact of theses discrepancies.

Authors:

First of all, previous research in Belgium and Flanders already show discrepancies in adherence level of the PA guidelines. We elaborate in this point under the heading “Research on complying to WHO PA guidelines in Flanders”

In this section we now state:

“It is remarkable that even papers that claim to test compliance to the WHO PA guidelines, don’t operationalize compliance in a way that fully matches the definition given by the WHO global recommendations on physical activity for health. The most obvious reason for this is that the available survey data isn’t specific enough. This is where time-diary data can prove to be an added benefit.”
Furthermore, we believe this discrepancy comes due to the fact that a lot of activities that contribute to PA, aren’t registered as such when measuring using survey questionnaires such as the GPAQ. We show this in the heading “

We also elaborated the discrepancy between our results and those of previous research in the discussion, which now states:

“Compared to previous research in the Belgian region of Flanders, the results of this paper report a higher compliance to the WHO PA guideline of 150 minutes of moderate PA or 75 minutes of vigorous PA or equivalent.

First, we believe this is at least partly because a lot of activities that contribute to moderate PA, such as vacuuming, aren’t reported when using a questionnaire on PA. A commonly used survey question is: “On how many of the last 7 days did you perform an activity requiring moderate physical exercise such as lifting a light load, cycling on a normal pace, or light sports?” We assume it likely that a lot of activities that should fall under moderate PA, such as vacuum cleaning, are not registered when using a questionnaire. A time-use diary doesn’t require the respondent to quickly make a summary of last week’s activities, categorizing all their activities according to the right PA intensity level and summing up the duration of all appropriate activities. Using time-diaries, respondents simply note down what activity they were doing.

Second, respondents aren’t biased due to a leading survey question. During time-diary data collection, there is no predefined research question as data could be used to analyze all sorts of behavior, ranging from commuting, sleep time, childcare or working hours to PA research. The absence of priming respondents with specific PA questions leads to less social desirability.

Furthermore, we believe time-diary to be an improvement for PA research as it is less prone to recall bias.“

Reviewer #2:

Finally and more importantly, why the authors focussed on flanders and not belgian population. Are the population more at risk? This notion needs to be adressed.

Authors:
We focused on Flanders due to the fact that the Flemish time-use data was collected over a 7-day period, which is not the case for any Belgian time-use data.

We elaborate in our data section, that now states:

“Most publicly available time-use datasets, such as the American Time Use Survey or the Harmonised European Time use Survey are insufficient to test these WHO PA guidelines as those datasets consist of only one or two 24 hour periods. The Flanders Modular Online Time Use Survey (MOTUS) data used in this paper consists of a 7-day diary. This 7-day scope lends itself ideally to see to which extent the WHO guidelines on physical activity are met, as those guidelines refer to a one week period. Although this longer timeframe makes the data collection harder, it has the added benefit of capturing weekly routines. As a social fact, human behavior is organized in weekly cycles [13]. A 7-day time-use registration is more suited to measure moderate to vigorous physical activities that are performed as part of a weekly pattern rather than on a daily basis. For example, take a respondent that has a weekly routing of jogging once or twice a week. Using a one or two day diary, it’s more likely that this activity isn’t captured. Therefore a one-week data collection is preferred when it comes to capturing weekly cycles.”

Reviewer #2:

In the introduction (background section), the link between the section from line 46-54 p1 to the other section (line 58p1 to line 9p2) is not clear. Please reorganise it.

Authors:

This has been restructured.

Reviewer #2:

Finally the subsection influence on PA could be removed from the introduction and can be added in case of needs on methods or discussion section…

Authors:

This specific suggestion of Reviewer #2 collides with a previous suggestion of Reviewer #1, who asked for these references to be placed here in the literature study. In this case the authors
agree with reviewer #1 that the literature study is a better place for this than methods or discussion, as it is our justification for adding these factors as independent variables in our model.

Reviewer #2:

The major comments are the following:

1) why are you presenting only 3028 respondents since you mentioned in your methods section than 3260 completed all the data requested.

Authors:

In our methods section we state that 3260 people competed the full survey. However, after selecting respondents aged 15-65; the dataset consists of 3028 people.

Reviewer #2:

2) why the population age over 65 yrs old are not in your analysis and results

Authors:

Because the WHO PA guidelines that we are testing apply to the group of 18-65 years of age. When introducing the guidelines in our background section, we now clearly state that these guidelines apply to this age group.

Reviewer #2:

In my opinion the authors didn't explored enough the data collected.

For example, it will be interesting to present the prevalence of PA during each season and according to age, gender, marital status and/or occupation …

Authors:
We chose not to show prevalence of attaining the WHO guidelines for PA for each of these variables separately, because doing so would come down to several bivariate analysis (a list of several cross tables, each time combining a separate independent variable with the dependant variable. Using a set of bivariate analyses makes it more likely to show significant results, while in reality are no longer significant after taking into account the relevant control variables and other independent variables.

In our the multivariate logistic regression, we can see if there is a significant effect of each of these variables, while controlling for all the other variables at the same time. Therefore we argue that a multivariate logistic regression is a sufficient and better way of analyzing these data.

Reviewer #2:

The authors did not compared the PA level data according to the 7-day recall between non responders (90% of his sample) and responders… This last comment is very important because if the 2 samples are very differents, the use of this type of tool induced a biais in your conclusion.

Authors:

We agree it would be interesting to compare PA data of respondents with non-respondents. However, this is not possible due to the fact that we don’t have any PA data of non-respondents.

However, in Table 1 we do show the drop-out during different stages of the research (pre-survey, starting time-diary, completing at least one diary day and completing the full data collection).

The figures in Table 1 show that the non-response per stage doesn’t seem to be very selective with regards to gender, age or education. Furthermore, multivariate results were controlled for self-reported health.

Reviewer #2:

The discussion needs to be reinforce by discussing what is the adding value of this tool (information versus feasability (only 10% of responders)). Why the practician or helath profressional need to use it more ??
Authors:

In terms of the added value of this tool, we added the following paragraph to the discussion:

“Using time-diary data opens a lot of possibilities for PA research, because a lot of countries already collect these data and put their data publicly available. Some examples are the American Time Use Study and countries that participate in the MTUS dataset (Austria, Bulgaria, Canada, Finland, France, Hungary, Israel, Italy, Netherlands, Spain and the United Kingdom).“

Reviewer #2:

The authors did not addressed the point that the high rate of prevalence could be influence by the responder's profile itself. May be only the active people completed all the questionnaire.

Authors:

We agree, and elaborated in our discussion:

The response rate is a limitation of this research. It could be that non-participants of the data collection are less physically active than participants. However, the non-response isn't very selective in terms of gender, age or education (table 1). Future research should try to overcome this non-response rate, for example by giving a reward to the participants or by staying more in touch with the respondents.

Reviewer #2:

In addition every point that influence the level of PA need to be develop. For example what about the «cultural habitus » which is linked to the social-economic status and martial status.

Authors:

We agree that cultural habitus is a strong concept to explain socioeconomic inequalities. However, the authors feel that this would lead us too far from the core of our research questions.
Overall, the discussion is not discussed extensively according to the literature. In fact, the authors reported only 5 references throughout 2 pages and ½.

Authors:

The discussion section has been updated as suggested.