Reviewer's report

Title: Occupational sitting time and its association with work engagement: results from the Stormont Study

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Reviewer: Chris Baker

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MAJOR COMPULSORY REVISIONS

Table 2 – incorrectly titled – the data are not presented by occupational sitting time category, but by gender. Tables should be able to stand alone, therefore full definitions of categories should be included underneath – define BMI and its categories, definition of part time, define physical activity guideline etc

Table 3 – much better labelling is needed – it would be useful to have brief definition of all 7 measures, and perhaps list them in the order that they are introduced in the text (e.g. vigor, dedication and absorption first, followed by job demands and job control, and then job performance). It is also not clear what the values are and how they were arrived at. Detail of the statistical analysis should be included underneath the table. Are they regression coefficients?

Table 4 – as above, labelling is needed for this table. Especially to help the reader understand the reference category for the binary variables (PA, smoking, married, dependents, work pattern). The analysis appears to be presented the ‘wrong way round’ (unless I am mistaken). By grouping the men into categories of moderate and high sitting times, the odds ratios given in this table are to be interpreted as follows: Males with high sitting times are less likely to be 40+, compared to the youngest age category, rather than the interpretation given in lines 238-9

Also, the sample sizes described in line 238 do not make sense. The male n has decreased from the n given earlier, in line 209, (presumably because those males with low sitting time are not included? Or it might be a type; 1945 becomes 1495), but the female n is still listed as 2491… but I assume a third of them are also excluded (who fell into the low sitting time category). Why was the low category not presented? This is not made clear in the text and should be rectified.

I wonder if what the authors are trying to present are the odds of having moderate or high sitting time, by characteristics, compared to low sitting time? E.g. overweight males are x times more likely to report higher sitting times than low sitting times? That seems like the most useful way to analyse the data, but currently these tables are difficult to interpret.

Table 5 – a poorly worded title. It is also not mentioned why the low sitting time
category is not presented. Similar to comments for Table 4, I think the analysis has been incorrectly carried out. It appears as if the odds ratios relate to specific sitting groups (e.g. in high sitting males the odds of high work vigor are half that of the high sitting males with low work vigor) Why no Low category of Absorption? What is the reference category for Job Performance?

MINOR ESSENTIAL REVISIONS

Two conflicting abstract word counts are presented (on page 1 and 2 respectively)

The acronym for NICS is incorrectly stated as NCIS in the abstract (at the start of the Methods it is introduced as NICS which makes sense). Authors should be consistent with acronyms throughout the manuscript.

A thorough grammar and spelling check is required; I found numerous missing or unnecessary full stops, commas, capital letters, and sometimes entire words. If it helps, there are errors on the following lines: 71, 89, 149 (absorption should be italic), 238, 252, 270, 320, 348 (plus many more).

Awkward, often clunky, phrasing should be re-worded to be clearer for the reader: 123-4, 198, 219, 240, 252-3

Line 75 - “Poor work outcomes” are introduced – it is not clear if these are work outcomes as perceived by the individual, or for the organisation – could benefit from clarification.

Line 88 - “Job resources” as a concept is introduced here – but is not clearly defined.

Line 95-98 – this summary of the study objectives is too long – suggest breaking up.

Line 108 – “No significant differences…” it would be prudent to include some statistical comparison of these proportions to reassure the reader that the sample and the underlying population are indeed similar. P-values for such calculations should be presented in Table 1. In fact, the authors could consider presenting in Table 1 the characteristics of the completers (rather than the completers and the non-completers combined) as this is the sample that is used in the inferential analysis.

Line 133 is unclear – if respondents describe how many minutes are spent sitting on a typical workday, what values are then summed? Do they actually give several different days’ of data?

Line 164 – authors should direct reader to the website, either within text or with a reference.

Line 180 – it is normal to include underweight as a category (<18.5kg/m2) – authors should mention if (as I imagine is the case) there were very few in this category, too small a number to warrant a fourth category?
Line 188-9 – are these tertiles derived from the sample? If so, authors could consider using sex-specific tertiles as the distributions appear very different for males and females, so much so that analysis is presented separately for men and women later on. Either way, the sample size in each tertile should be presented in Table 2 (as the title suggests it will!)

Line 234 – I find confusing; do the authors mean to say that a correlation between vigor and job control was not found? The cell that links these two measures in table 3 looks to be highly significant (for both genders)?

Lines 233-6 - The last two sentences of this paragraph are confusing - if "All work variables correlated with each other..." then the last sentence doesn't make any sense. Why then pick out which ones are positively correlated... either they are ALL correlated, or they are not ALL correlated. Job control is mentioned in both these sentences but it contradicts itself...

Maybe the issue lies with what the “work variables” are, do they not include the “work engagement” variables? As stated above, a table/diagram would help with defined group categories.

Table 1 – second age category should be 26-34?

DISCRETIONARY REVISIONS

Lines 113-4 states that almost 800 respondents did not complete the survey and were therefore excluded. Representing 15% of total respondents is not insignificant – can the authors consider presenting a comparison of non-completers and completers?

A key problem (for me) in understanding the paper relates to the various (7, if I am correct) work-related measures. Perhaps people with specialist knowledge would be fine, but I suggest grouping them more carefully and adding more text that distinguishes them from each other and justifies their inclusion. The Utrecht Scale gives 3 sub-domains of work engagement, the MSIT gives 2 sub-domains related to psychosocial hazard, and one further sub-domain is added but it is not explicitly mentioned which tool this comes from (only that it forms part of a larger validated questionnaire). A table or diagram could better display the different domains and their respective definitions, sub-components and sources.

Line 177 – is it age of dependents or respondents?

Line 273 – are the other studies in comparable populations (civil service? UK)? It’s useful to know this.

Line 291 – “First, the findings may suggest that reduced occupational sedentary behaviour may be beneficial for work outcomes” does not sound like an explanation (as suggested in previous sentence), but rather an implication of the findings.

Line 298 – authors are right to highlight the utility of further research using longitudinal data but should consider framing this alongside an explicit mention of
the limitations of their cross-sectional study design

Line 318 – what is the interpretation of this result – if none, then this doesn’t belong in the Discussion as it is merely stating a result.

Line 338-40 – as above

Line 340-2 – this description of theory belongs in introduction

Statistical Analysis – if the authors have sitting time as a continuous variable they could consider performing linear regression with work measures as the outcome variables and sitting time as the exposure variable. This could give a more powerful estimate of the effect of each extra unit increase in sitting time. "For every extra half an hour sitting time reported, work vigor reduced by x" for example.

**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