Reviewer’s report

Title: Determinants of physical activity and sedentary behaviour in university students: a qualitative study using focus group discussions

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Reviewer: Jaclyn P Maher

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Determinants of physical activity and sedentary behaviour in university students: a qualitative study using focus group discussions

In this study focus groups were used to investigate the determinants of and possible intervention strategies for physical activity and sedentary behaviour. Determinants and strategies were outlined within the context of the ecological framework. This topic appears to be much more novel regarding sedentary behavior. There are several major issues that should be addressed to improve the quality of the manuscript.

Major Revisions

1. The authors seem to take a stance that sedentary behaviour is a maladaptive health behaviour, which is understandable; however, sedentary behaviour is usually only problematic when engaged in for excessive amounts of time over a day (e.g., 8+ waking hours). Furthermore, although physiologically all sedentary behaviours may have negative effects, psychologically different domains of sedentary behaviour differentially affect well-being, depressive symptoms, cognitive functioning etc. This is an important caveat worth addressing and perhaps when interpreting the results.

2. It is not surprising to me that many students were unsure of what exactly sedentary behaviour is considered. Were participants asked to report their current level of sedentary behaviour? A question of this nature is not listed in Table 1 and seems odd that other weight-related behaviours were assessed. Having participants complete a measure of their sedentary behaviour (or some other approximation) would likely create awareness of time spend sitting and give participants a better perspective when answering these questions.

3. The focus group questions seem vague. Only one question explicitly mentions physical activity or sedentary behaviour. Did focus groups always answer each question in the context of physical activity and then also sedentary behaviour? Also, the description of the results in the text is lacking. The authors simply refer the reader to the figures, with no other mention of barriers/resources put forth by participants until the discussion. The authors also note in the discussion that that did not want to quantify issued raised by participants; however, if one of the purposes of this paper is to identify determinants of behaviour and provide suggestions for behaviour change wouldn’t it be wise to know which determinants were frequently vs infrequently cited. More people would be likely
to face frequently cited barriers and therefore represent something that should be addressed in interventions trying to overcome those barriers and change behaviour (which the authors also cite is one of the implications of this paper [i.e., identifying potential targets for intervention]). I believe this is a critical aspect of the paper that is missing. The paper can still remain largely qualitative while adding in frequency counts to give the reader some context to those results.

4. Furthermore, a more informative approach would have been for the authors to examine differences in barriers/resources in those that are regularly active vs not regularly active (especially considering that half of the sample identified as engaging in little to no activity). A similar analysis would have been appropriate for sedentary behaviour, but I am not sure if that was assessed.

5. Again, providing at least frequency counts of how often suggestions were offered for interventions would be helpful.

6. What was the level of agreement between coders? How many instances were there of coder disagreements that needed to be resolved?

7. p. 12, lines 275-280. What self-regulation skills have previously shown to enhance health behaviour in college students? How would these finding translate to promoting weight maintenance in college students? What would a potential intervention focusing on those skills look like?

8. Providing headings in the discussion section that align with the ecological model, may provide a clearer structure to the discussion.

9. The authors note that physical activity and sedentary behaviour include many of the same determinants in this study; however, these determinants need to be evaluated in context of theoretical frameworks like the Health Action Process Approach or Theory of Planned Behaviour to determine if the contribution these determinants to behaviour/behaviour change are similar or distinct.

10. p. 15, lines 337-38. The authors note that interventions to promote physical activity might reduce sedentary behaviour. A recent review of physical activity and sedentary behaviour interventions published in Obesity Reviews, found that interventions aiming to promote physical activity (with no sedentary behaviour component) were least effective in reducing sedentary behaviour, compared to those studies that specifically targeted sedentary behaviour (Prince, Saunders, Gresty, & Reid, 2014).

11. The novelty of this paper, concerning physical activity, is framed as we do not know much about how to change the determinants and how to increase physical activity in this population; however, I would argue that this paper does not systematically attempt to answer these questions. Additionally college students are one of the most frequently samples populations for physical activity research and are often considered a convenient sample. Simply asking participants how to reduce barriers to physical activity participation does not mean these will be effective strategies and result in behavior change. it is unlikely that by reducing the cost of a gym membership more people will start attending unless they are already motivated at the intrapersonal level to engage in the behavior. The novelty of this paper, especially concerning physical activity, should be elaborated.
Minor Revisions
11. p. 5, line 75. The in-text citation is listed twice.
12. p. 11, line 251. Enroll spelled incorrectly
14. p. 12, lines 271-73. The authors discuss the popularity of social media; however, it seems likely that many people access social media through their smartphones or tablet computers which does not necessarily have to occur while sitting or lying down. The authors previously mention in the introduction that sedentary activities can include socializing. Again were the participants clear that socializing while standing is not considered sedentary and was this distinction evident in participant responses?

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

**Quality of written English:** Acceptable

**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