Reviewer’s report

Title: Comparison of device-based physical activity and sedentary behaviour following percutaneous coronary intervention in a cohort from Sweden and Australia: a harmonised, exploratory study.

Version: 0 Date: 09 Dec 2019

Reviewer: Naomi Burn

Reviewer's report:

This paper reports a cross-sectional study aiming to objectively assess physical activity and sedentary behaviour in a population of Australian and Swedish patients following hospitalisation for percutaneous coronary intervention (PCI).

I enjoyed reading this paper and commend the authors for using objective physical activity and sedentary behaviour assessment tools. I have some comments which I believe, when addressed will strengthen the paper.

General comments

While I understand in physical activity and sedentary behaviour literature it is common practice to abbreviate these terms to PA and SB, the high use of other abbreviations throughout the text (e.g. PCI, ACS, MVPA etc) means that in places some sentences become difficult to follow due to the presence of multiple abbreviations. I understand abbreviations are often used when word count is limited, but as this abbreviation only saves one word in each case, I suggest writing the terms physical activity and sedentary behaviour out in full throughout the manuscript.

Introduction

Line 18: the authors state here that a limited number of studies have examined physical activity and sedentary behaviour levels in post-PCI patients and give reference to a number of papers. I think the introduction would be strengthened with a brief overview of the main findings of this body of work.

Method

Did the authors consider also assessing physical activity and sedentary behaviour both during and after cardiac rehabilitation? I think this data would have strengthened the piece of work. If this was not considered perhaps the authors could consider including this in the discussion as a limitation of the paper, or a recommendation for future research studies.
On line 49 the authors state "In Sweden patients were offered exercise-based cardiac rehabilitation and education sessions separately and participants were included prior to exercise sessions". While I understand here that data were collected prior to cardiac rehabilitation exercise sessions, could this mean that data were being collected after participants had received some of the education component of the cardiac rehabilitation? If that is the case, and given that physical activity was higher in the Swedish population, I think that this should be described in more detail here and the implications of this included in the discussion/limitations section.

Line 56, can the authors please confirm if the exact data presented in this paper from the Australian cohort have been presented elsewhere? If so, I think this needs to be explicitly stated here because if the present study and previous work were both included in a meta-analysis as if the data were from separate participants this may result in double counting of the Australian data set. This sentence could read something like "the data from the Australia cohort has been previously published elsewhere (reference)".

Line 97- "non-wear time defined as &gt;60 minutes of zero activity". Although the authors have reference their choice of non-wear time cut-point here, which I commend, 60 minutes seems a very short time period to me, is it not possible that 60 minutes could be an extended period of sedentary time? Did the authors triangulated non-wear time with wear time diaries or similar?

Line 103- here the authors cite which cut points were selected. For clarity here, can the authors please state specifically which populations these cut-points have been validated in and whether these cut-points are appropriate for the sample.

Line 123- Can the authors please give more details on the Hospital Anxiety and Depression Scale to assist readers unfamiliar with the scale. This information could include possible score range (e.g. 10 to 50), if higher scores indicate lower or higher depression and anxiety, and what is considered a clinically significant score using the HADS (e.g. are patients with a HADS score over a certain threshold referred for further psychological support)?

Results

Please can the authors present exact p-values throughout the results section rather than p&lt;0.001 etc. Exact p-values are required for meta-analysis, therefore the practice of reporting "p&gt; value" prohibits this.

Table 2: LPA has a single asterisks, but this sign does not appear in the table legend. Can the authors please confirm what a single asterisks signifies in this table? I think this table would benefit from a third column stating exact p-values as opposed to the asterisk system currently presented.

The authors reported a statistically significant difference between Australian and Swedish cohorts in a number of outcomes. I think the paper would benefit from a consideration of the clinical or practical significance of these differences to compliment the statistical significance. I think this should be considered throughout the results and discussion sections. For example,
there is a statistically significant difference in sedentary minutes per day between the cohorts (Australia: 572 mins, Sweden: 570 mins) would the authors consider the two minutes difference in sedentary time to be clinically or practically meaningful.

Discussion

Line 163- Strictly speaking reference number 38 compared sedentary behaviour time to mortality risk, so I think this sentence should read "with increased mortality risk associated with more than 9 hours of device based sedentary time" as opposed to the phrase "health impaired" which suggests risk of morbidity not mortality.

Line 167: Please can the authors cite here the empirical evidence suggesting that reducing sedentary time reduces the risk of recurrent cardiac events.

Line 168: Please can the authors cite here the evidence suggesting that reducing sedentary time in the absence of changes in exercise behaviour improves health outcomes in this population.

Line 203: Here the authors cite studies reporting physical activity levels in the general population in Australia and Sweden, and conclude that the Swedish population is more active than the Australian population. The authors then conclude that Swedish post-PCI patients are therefore more likely to participate in more activity at baseline than Australian post-PCI patients. Can the findings of studies from the general population be so easily generalised to this clinical population? I think this sentence needs to be much more cautious. I would prefer it to read "this indicates that Swedish post-PCI participants may have had a higher levels of…"

Limitations: there were substantially more participants in the Swedish cohort than the Australian cohort. I think the authors should consider the implications of this in the limitations section.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
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Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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