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: 16 Dec 2019

Reviewer: Kim Straun

Reviewer's report:

Line 12 - Authors do a good job at concisely outlining the limitations around self-report measures and making a case for accelerometers, however I feel this could be strengthened. Considering the depth of data available, particularly when using raw data, the case for using device-based measurement could be stronger.

Line 27 - Relevance of membership of Organisation for Economic Co-operation and Development?

Line 29 - Potentially interesting to add proportion of patients with this particular condition that are being treated using PCI - which would further reinforce the case for establishing health behaviour comparisons between the two countries.

Line 36 - Mention of other studies missing here - what is the variety of data collection and processing methods that you mention? Researchers outside the PA/SB realm might struggle to understand the reason for adding this statement.

Introduction - Room to strengthen the case for focusing on PA and SB rather than diet or other lifestyle factors that have an impact on coronary heart disease and related conditions. Reference to current global physical activity data (e.g. Guthold et al., 2018) or other data of coronary heart disease patients specifically, is missing. Closing paragraph in the introduction seems abrupt and could be improved to provide a stronger rationale for conducting this research.

Line 50 - Does this mean Swedish patients had educational sessions prior to taking part in the study? Was it recorded what these patients had undergone prior to taking part in the study (e.g. what did the consultation with medical staff involve, what information were patients provided with prior to commencing 'official' cardiac rehabilitation etc.) Considering more detail on this is provided from line 65, the authors could consider re-organising this section to ensure a red thread is followed and the structure is clearer.

Line 59 - And in Australia?

Paragraph starting line 65 - Considering the significant differences in recommendations and educational information provided by healthcare staff following PCI, the findings of this study are
unsurprising. As this difference has a crucial impact on the outcomes of this study, this detail could be added to the abstract (word count permitting).

Line 81 - Considering significant differences in outcomes can arise when using different devices, some detail here is missing that addresses these issues when comparing data.

Line 85 - Was this survey conducted with each patient in this cohort and individually applied or was an average taken and applied across the whole sample? The latter comes with issues around individual schedules (especially considering the age range included in this study).

Line 94 - Considering the importance of this study as it uses device-based measurements involving accelerometers, it is surprising a higher frequency (e.g. 90 Hz) and smaller epoch length (e.g. 3 seconds) wasn't used to increase data accuracy? The authors should provide a comment on why these criteria and the Sazaki et al., cut-points were used when new developments in accelerometer data analysis have shown the benefits of using alternative measures (namely intensity gradient and average acceleration; refer to Rowlands et al., 2018). This is particularly important considering no validated cut points for the specific population involved in this study are available (as referred to in line 229).

Line 99 - The authors previously mention that accelerometers were worn for 7 days. How many patients wore the devices for more than 7 days and how was this achieved?

Line 103 - Sazaki et al. cut-points should be used and reported accurately, reflecting LPA ≤ 2690, MVPA 2691 - 9642 and VVPA from 9643 if included.

Line 130 - Would the authors be able to provide some information here on why accelerometer wear-time was used as covariate when baseline PA or SB would arguably be a more relevant variable to control for (and has been used frequently in PA research)?

Line 141 - It should be discussed how these factors impact on the condition patients were treated for using PCI. It could be argued the two samples were different from each other in key variables, making comparison in terms of outcomes directly related to their treatment problematic.

Line 162 - Consider re-phrasing this sentence.

Line 164 - 'has recently been added TO the public health guidelines'

Line 204 - Differences in PA levels between the two countries strengthens the argument for using baseline PA as covariate during statistical analysis.

Line 234 - Further, issues with using two devices (ActiGraphs for PA and ActivPALs for SB) simultaneously over 7 days, which includes potential reduced wear-time.

Discussion - Potentially interesting to include some data here on health benefits of increased PA and reduced SB for patients requiring PCI to strengthen the authors’ argument.
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.

Yes

Are the conclusions drawn adequately supported by the data shown?  
If not, please explain in your comments to the authors.

Yes

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