Reviewer’s report

Title: OBJECTIVE ASSESSMENT OF PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR IN KNEE OSTEOARTHRITIS PATIENTS - BEYOND DAILY STEPS AND TOTAL SEDENTARY TIME

Version: 0 Date: 04 Dec 2017

Reviewer: Jonathan Quicke

Reviewer’s report:

Objective Assessment of physical activity and sedentary behaviour in knee osteoarthritis patients- beyond daily steps and total sedentary time

Many thanks for submitting your manuscript "Objective Assessment of physical activity and sedentary behaviour in knee osteoarthritis patients- beyond daily steps and total sedentary time" to BMC Musculoskeletal Disorders. In my opinion, this manuscript is sufficiently novel and has relevance for future research in the field hence is of potential interest to the journal readership. The authors also have appropriate ethical approval. However, it has some major analysis limitations to consider and at times over generalises from the research findings. I believe these factors reduce its scientific value in its current form.

Aims/background

This manuscript aimed to comprehensively describe physical activity (by assessing frequency, cardiovascular intensity, time and type of physical activity carried out) and sedentary behaviour of patients with knee osteoarthritis. They also aimed to see if this differed between sub-groups of knee OA patients. The authors state that physical activity behaviour can be protective or harmful depending on the FITT dimensions. They highlight the literature gap that, to date, studies that have assessed PA in patients with knee OA have generally not been able to describe the four individual dimensions of PA therefore potentially relevant knowledge regarding the effect of different types of PA on KOA patients might have been missed. This is of clinical importance.

Minor considerations for clarity:

line 65-66 please add "in part" before your statement that "due to pain and limitations knee OA patients generally lead a sedentary lifestyle and do not meet PA guidelines". The systematic review by Wallis and colleagues actually highlights that pain intensity is NOT consistently associated with PA behaviour. We also know that adults and older adults without pain and knee OA often do not meet recommended PA guideline amounts of PA.

Please define what you mean by "sedentary lifestyle".
Your reference style of the Terwee 2011 systematic review of physical activity instruments paper and subsequent sentence (line 75-76) read as if the Terwee reference is a primary source whose findings support your later point. I would consider bringing the Terwee reference sentence to line 71 to improve the flow.

Please consider rephrasing lines 112-114 for clarity.

Methods and analysis

Some major limitations weaken the strength of your exploratory analyses.

Major considerations:

By investigating correlations rather than building regression models you are unable to investigate the magnitude of associations of interest in meaningful units.

Although you investigated whether there were differences in possible confounders between your sub-groups, you did not adjust for potential confounders in any of your analyses. As a result of this we are unable to tell if your correlations are confounded by other variables associated with the independent and dependent variables of interest in your analyses.

You carried out both ANOVA and independent samples t-tests/Mann-whitney U-tests to determine the difference in PA parameters between subgroups of BMI categories. Please can you consider the "familywise error" effect of this. I invite the authors to discuss this later in their discussion limitations.

Minor considerations:

Please clarify that your sample was from Germany.

Line 145 please qualify specific physical activity events.

Your "knee injury" question may only capture very severe knee injuries. Important common knee injuries such as meniscal lesions and cruciate ligament tears may not have been picked up by this.

Results

Minor considerations for clarity:

When reporting sample statistics please clarify and signpost whether this is mean and standard deviation/ median etc. "On average" (eg. line 189) is not sufficiently clear to the reader.
Please reference your 10,000 steps recommendation (line 207).

Please back up you summary sedentary associations with statistics (line 213). It is important to report both significant and non-significant findings. I also wonder if a table for your correlation findings would be helpful.

Since you are analysing by different comorbidity subgroups it would be helpful for the reader to have numbers and proportions in each subgroup.

Judicious use of additional subheadings would help to split up your result section and make it easier for the reader to follow.

Discussion and conclusion

In my opinion, it is helpful for the reader if you start the discussion with a summary of your main findings.

In discussing the generalisability of this sample from the Netherlands to other OA populations, it is important to state which samples you are comparing to aid the reader's understanding.

Major additions:

I invite the authors to discuss analysis limitations. In particular: family wise error and confounding.

You mention that this sample was relatively small, please further discuss what effect could this have on your findings (line 380).

Please amend your conclusions to state that "from this sample of knee OA patients" rather than "knee OA patients". I personally do not think you can generalise to all knee OA patients from an exploratory study of a sample of 61 patients.

Minor additions:

Are there any limitations of using accelerometry to assess different parameters of physical activity? For example, are there limitations with activities such as slow walking and swimming? Might physical activity behaviour change as a result of being monitored?

Final assessment:

Recommend for major corrections.
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.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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