Reviewer’s report

Title: Fatigue, Barriers to Physical Activity and Predictors for Motivation to Exercise in Advanced Cancer Patients

Version: 1 Date: 20 Jan 2020

Reviewer: R. Thomas Jagoe

Reviewer's report:

Thank you to the authors for their response to my prior comments and questions. I find the methods and the manuscript easier to follow as a result.

As the authors accept some potential weaknesses in data collection remain for example in determining social barriers etc but these are now addressed in the discussion.

My main remaining concerns are about the analysis and clarity of presentation of the results:

1. The analysis of factor predicting 'motivation' and the regression model constructed to 'explain' motivation for PA is still confusing. It is not clear how the dependent outcome (motivation) was measured - was this simply the response to one of the survey questions about PA motivation using response 2-5 to indicate "Yes"? If so this needs to be explained more clearly. Furthermore, though I understand the authors intended to investigate motivation as a primary outcome for this manuscript the result of this regression model does not seem so interesting if the only significant explanatory variables are fatigue (in a group that are selected to be fatigued) and 'interest in exercise' etc. Nor am I quite clear how fatigue got included in the model for this outcome to start with.

2. By contrast, the regression model around predictors of performing PA seems more important and interesting and should be dealt with more fully and perhaps replace Table 3. I find it difficult to believe that responses to "I was physically active before my cancer diagnosis" and "I am interested in an exercise program" and "I think PA could have a positive impact on my QoL" are really independent in the model - is this really so? Also what happens when one includes one or more of the above response(s) to questions about motivation with other objective/measured barriers namely: ECOG, &gt;=2 cormorbidities and Breast cancer (Y/N) in the logistic regression?

3. Finally I think it is critical that the authors pay more attention to clarify and rationalise the apparent contradiction in the data on patient-reported barriers as this still seems muddled and the reader is left with the impression that "I feel weakened due to my tumour therapy" is a barrier to PA. Indeed in the discussion para 2 the authors state:
"Our analysis clearly presented that the statement "I feel weakened.." was the main patient-reported barrier for PA ..." What I think is meant is that this was the most commonly reported barrier, but that doesn't tell us anything about how it is really perceived by the patient nor the real impact on patient behaviour. In fact, though a large majority of patients report "I feel weakened due to my tumour therapy" and fatigue etc as barriers, these do NOT appear to be as important as patient interest in PA and motivation (and presumably their perception of benefits of PA at some level) (table 2). This
illustrates, I think, the difficulty with the list approach to compiling potential barriers to PA which I mentioned in my prior comments. As an example, for some patients fatigue is really the thing which stops them exercising, for some fatigue is one of several things that combine to stop them exercising and for others fatigue is a barrier but not one that stops them exercising it just makes it more difficult or effortful. This raises a very interesting question about how to modulate the impact of symptoms like fatigue to reduce the negative impact on PA. The data in this manuscript suggests perhaps that working to increase interest and motivation to exercise could be a successful strategy … This and related concepts could be brought up briefly in the discussion.

4. As mentioned above I would also like to see results of regression on PA status, when these patient-reported factors (interest/motivation) are combined with data on co-morbidities, functional status and tumour type…(Results to be determined as above and results/conclusions to be adjusted accordingly ).

5. Discussion could be more concise and main message of some paragraphs (e.g. 3,4,5) seemed very similar and could perhaps be contracted

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

No

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?
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No

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