Reviewer’s report

Title: Physical fitness and levels of physical activity in people with severe mental illness: a cross sectional study

Version: 0 Date: 09 Jun 2017

Reviewer: Joseph Firth

Reviewer's report:

Overall

This is a very interesting and important paper, which has combined strong theoretical underpinnings with rigorous methodology and analyses, along with large sample size. This paper sheds new and more definitive insights on an under-researched area; namely the fitness and physical activity in people with SMI. That said, I have made some suggestions which I feel should be implemented prior to the paper's publication:

Introduction

1.1. The introduction is excellent overall and presents a strong case for the current study. However, I am concerned about some careless/inaccurate citations, along with omissions of key recent articles in this exact area.

For instance, when referring to mental-wellbeing benefits of physical activity, the authors say: "….so that the participation of adults with severe mental illness in sports and recreational activities has often been addressed to enhance overall wellbeing and promote social inclusion 10,11" but have cited literature referencing a study in Multiple Sclerosis? (which is not an SMI). If they wish to cite literature relevant to overall wellbeing benefits and social inclusion from physical activity in SMI, I would recommend a study of psychosis patients published in a sister journal lately ( see Firth et al., 2016, BMC Psychiatry, DOI: 10.1186/s12888-016-0751-7 )

1.2. When referring to the inactivity and sedentary behaviours of people with SMI, I would recommend referring to two recent meta-analysis of physical activity published recently, namely:

Stubbs et al., 2016, Schizophrenia Research, DOI: 10.1016/j.schres.2016.05.017

Schuch et al., 2016, Journal of Affective Disorders, DOI: 10.1016/j.jad.2016.10.050
2. Methods

The methods are described in thorough detail and are a good example of clear and replicable reporting.

2.1. Why was a standard measure of self-report physical activity not used? Such as the IPAQ?

3. Results

The results apply appropriate analyses and report all of the data required to support the inferences presented in the Discussion. Furthermore, the excellent adherence rates and adequate sample size add strength to the findings.

3.1. The authors should report whether or not there was significant differences in Age between active/inactive groups

4. Discussion

4.1. The Discussion presents a non-biased and accurate description of the current findings. However, it is quite short and I would like to see some mention of two different things:

A) Recommendations on which types of physical activity interventions would be best for improving these measures of fitness…i.e. should future trials focus more on intensive aerobic activity, or steady walking, or resistance training? Some reference to previous studies perhaps in other populations for falls-risk (elderly) would be helpful

B) More consideration of what may motivate people with SMI to undertake more regular physical activity in order to improve their fitness. As a starting point, the authors may wish to refer to a recent but small survey study in people with psychosis indicating that these individuals primarily wish to engage in a mixture of aerobic/resistance training, and, most importantly, see 'improving fitness' as one of their main reasons for wanting to exercise...which fits the results of this present study nicely. See Firth et al., 2016, Acta Psychiatrca Scandinavica, DOI: 10.1111/acps.12562

4.2. Limitations and conclusions

The authors have effectively addressed the key limitations, although should also note that differences in physical fitness between different type of SMI (i.e. schizophrenia vs. BP vs MDD) should be addressed in future research.
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

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

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?
If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

NONE

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal