Reviewer’s report

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

Version: 0 Date: 11 Jun 2017

Reviewer: Gerald Jerome

Reviewer's report:

The authors explore an important topic, physical fitness among adults with serious mental illness reported by physical activity levels. As the authors pointed out, there have been relatively few efforts to categorize different dimensions of fitness in this population and even less attention to the association between physical activity levels and different aspects of physical fitness. The authors examined 62 men and women with SMI. Fitness assessments included strength, balance, flexibility and aerobic function. This is an important topic that deserves attention yet the current manuscript has a number of limitations.

Major Comments

Perhaps the most significant limitation is the assessment and subsequent categorization of physical activity. The authors should clarify if they used a standardized questionnaire and exactly how staff and family members "ensured" the data. Additionally, it should be clarified if this assessment of activity is focused on the participants time as an inpatient. If all self-report physical activity references time as in-patient then a better description of the facility and program are needed. Is there a workout facility, how much free time is there for participants to engage in activity? Can in-patients taking extended walks, is this level of independence encouraged? The authors also need stronger justification for the current physical activity grouping. How were these categories determined? The paper would be much stronger if activity level groupings were based on a national/international physical activity guideline.

The current manuscript may benefit from having a comparison group of those who were truly sedentary.

The authors indicated no differences in sex between physical activity groups, however the authors should consider reporting fitness by sex. Although sample size may limit the ability to detect between group differences, fitness is often reported by sex.

The authors indicate that barriers lead to lower motivation and lower self-efficacy [background] and should provide a reference for that statement.
The authors included a range of fitness evaluation and did a nice job referencing each of them. The manuscript would be stronger if the authors also indicated if there were established norms or cutpoints for the various assessments. Being able to describe the functional level of this sample would be an important addition.

Consider a table displaying participant characteristics that includes diagnosis.

In the current table 1, there is enough space to spell out the name of the test which would help the reader.

In the two-minute step test the authors indicate "perform a static step up" perhaps they mean "perform a step-up in place"?

Page 9. Consider changing "showed higher values and significant differences" with "had better performance". Consider global replacement of "higher values" with "better performance" as it is more descriptive.

Please clarify page 10, line 7 "It is important to highlight the greatest values in muscle strength and balance".

Page 11 The authors indicate that interventions should promote strength and balance as well as aerobic fitness. This statement is true and supported by most guidelines/recommendations for physical activity among adults. The statement may be more pertinent to the current manuscript highlighted data from the current study indicating poor balance and/or poor strength for their age/sex.

Perhaps the authors could find a reference for the balance test eyes closed being more challenging and hence a more discerning measure than the balance test eyes open.

The authors indicated "Physically activity people may have reduced risk of falls" [abstract] this may be true, but no evidence presented in this paper.

The authors indicated "This better values in physical fitness shown in the present study into both strength and balance suggest that physically active people with SMI also experience a lower risk of falls an fractures"[discussion]. The authors should ensure the results highlight data to support statements in the discussion.
Page 11. Please clarify "people to perform physical activity autonomously"

Minor Comments

Page 12, lines 6: this is not the first paper to evaluate fitness in people with SMI

Page 7, line 16, check the font (perhaps it was just my display)

The following are suggestions related to grammar and word choice:

Replace "practice" with "engage" e.g. engage in regular physical activity.

Replace "causal coincidence" with "causal relationship"

Replace "according to their activeness" with "according to their physical activity level"

Replace "participants is placed on two legs" with "participants stand with feet should width apart" [confirm with test methods that it is should width]

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?
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:

Needs some language corrections before being published

**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.

I declare that I have no competing interests

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