Author’s response to reviews

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

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ITEMIZED LIST OF THE REVIEWER COMMENT

BMC Sport Science

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

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Authors: Perez-Cruzado D, Cuesta-Vargas AI, Vera-Garcia E, Mayoral-Cleries F

Dear Editor,

Please, find a revision of our manuscript entitled “Physical fitness and levels of physical activity in people with severe mental illness: a cross-sectional study”.

We would like to thank the Editor for their thoughtful and constructive comments. We have considered all suggestions, and have incorporated them into the revised manuscript. We believe our manuscript is stronger as a result of the modifications. An itemized point-by-point response to the Reviewers’ comments is presented below.
Comments from the reviewers

Reviewer 1

Comments:

This was a brief and novel study that illustrated some interesting points about physical activity and fitness in people living with SMI. Overall, not much was found aside from grip strength and balance. The authors may wish to highlight the important points of their research and focus on the future. Specifically, some notes to make regarding your paper:

Results. Is there a better way of describing the findings of your work? It comes across as very brief.

Authors: We thank you for your suggestion. We have improved the findings of the present work as follows: “Descriptive and inferential data about physical fitness are presented in Table 1. Significant differences were found between physically active group and physically inactive group in one strength test (handgrip test) and in balances tests (SLS with closed eyes and FRT with left leg). Some physical tests such as hand strength (HGT) and balance tests (SLS and FRT) demonstrated that the group of active people showed higher values and significant differences than the group of inactive people. In contrast, as for the physical test that assessed flexibility and aerobic condition, significant differences were not found with the group of people physically inactive in spite of the group of active people had higher values in all assessed tests in flexibility, strength, balances and aerobic condition.”

In the discussion, what else can you tell us about this work in relation to previous studies? Other than vancampfort's work, anything else of similarity/difference?

Authors: We thank you for your suggestion. We have added a paragraph in relation to previous studies as follows: “The differences in physical fitness between active and inactive people with severe mental illness have only been shown in the Vancampfort et al. study and in the present study, although these differences have been shown in another population as intellectual disability 40. Although in many studies have shown the benefits of physical activity in improving physical fitness in this population 41,42.”
What's next? What research should we be focusing on? How can we use this research for any public health/clinical care implications?

o Authors: We thank you for your suggestion. We have added that it is important to find other variables that could improve physical fitness in people with severe mental illness as follows: “although the physical fitness of people with severe mental illness is not only identified by their level of physical activity, we must focus on the variables that improve the physical fitness of these people to carry out future interventions.”

In addition to limitations, any strengths worth noting?

o Authors: We thank you for your suggestion and we have incorporated some strengths

Reviewer 2

Comments:

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

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).
Authors: We thank you for your suggestion. We have made a mistake with the bibliography and we have replaced the cited literature and we have corrected the mistake.

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)

Authors: We thank you for your suggestion. We have cited the recommended study since we think that it would improve the present study.

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

Authors: We thank you for your suggestion. We have referred the meta-analysis studies that you have recommended us.

Methods

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

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

Authors: We thank you for your suggestion. We have not include a standard self-report physical activity measure, because exist low correlation with objetive measures following the literature Prev Med. 2011 May;52(5):361-4.
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.

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

Authors: We thank you for your suggestion. We have added that no significant differences were found in age between both groups as follows: “The average age of the sample was 46.21 (±8.37) years with no significant differences neither.”

Discussion

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:

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.

Authors: We thank you for your suggestion. We have followed your suggestion and we have referred a previous study of physical activity in elderly people that could improve the comprehension of the paper as follows: “these interventions should not just focus on aerobic activity but also on increasing the muscle strength and balance of people with SMI and also encourage these people to perform physical activity autonomously and to decrease the risk of falls similar to those carried out in other populations as elderly people 45.”
More consideration of what may motivate people with SMI to undertake more regular physical activity in order to improve their fitness. As a starting people, 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 Psychiatrica Scandinavica, DOI: 10.1111/acps.12562

Authors: We thank you for your suggestion. We have added the cited reference as follows: “Moreover the improvement in physical fitness is one of the main reasons to engage in physical activity in this population”.

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.

Authors: We thank you for your suggestion. We have added this message in the present article as follows: “On the other hand, the present study is the first to evaluate the physical fitness in people with SMI, since their level of physical activity and the large number of assessed physical tests allows us to determine the physical fitness of this population across a large set of variables but in the future the present results could be improve finding the differences between different pathologies included in severe mental illness.”

Reviewer 3

Comments:

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.
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.

Authors: We thank you for your suggestion. We have not include a standard self-report physical activity measure, because exist low correlation with objetive measures following the literature Prev Med. 2011 May;52(5):361-4.

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

Authors: We thank you for your suggestion. In the present study all the simple reported that they performed physical activity 1 o 2 days per week so it is impossible to make this comparison.

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.

Authors: We thank you for your suggestion. In the present study were not made differences between sex due to the limited sample that were assessed.

The authors indicate that barriers lead to lower motivation and lower self-efficacy [background] and should provide a reference for that statement.

Authors: We thank you for your suggestion. We have added a reference for that statement (Vancampfort D, Knapen J, Probst M, Scheewe T, Remans S, De Hert M. A systematic review

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.

> Authors: We thank you for your suggestion. The physical fitness tests that were assessed in the present study were not added cutpoints, so this information could not been included in the study.

Consider a table displaying participant characteristics that includes diagnosis.

> Authors: We thank you for your suggestion. However, we have not this medical information, because all participant were under Severe Mental Disorder/Illnes referred to physiotherapy.

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

> Authors: We thank you for your suggestion. We have spelled out the name of the test in Table 1.

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

> Authors: We thank you for your suggestion. We have replaced “perform a static step up” by “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.

Authors: We thank you for your suggestion. We have revised the entire manuscript and we have made the suggested modifications.

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

Authors: We thank you for your suggestion. We have rewritten the phrase for a better comprehension as follows: “It is important to highlight the better performance in muscle strength and balance tests found in the group of physically active people”.

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.

Thanks for the suggestion; we have include into the limitation section that in the further studies, with bigger simple we will stratify by age/sex the results

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.

Authors: We thank you for your suggestion. We have added a reference for the balance test with closed eyes.
The authors indicated "Physically activity people may have reduced risk of falls" [abstract] this may be true, but no evidence presented in this paper.

Authors: We thank you for your suggestion. In the manuscript were added two references about this statement:


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.

Authors: We thank you for your suggestion. We have rewritten this statement support by literature.

Page 11. Please clarify "people to perform physical activity autonomously"

Authors: We thank you for your suggestion. We have changed the phrase by “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

Authors: We thank you for your suggestion. We have deleted this phrase.
Authors: We thank you for your suggestion. We have checked the font entire the manuscript.

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]

Authors: We thank you for your suggestion. We have made the suggested modifications.