Reviewer's report

Title: Decreased risk of falls in patients attending music sessions on an acute geriatric ward: results from a retrospective cohort study

Version: 2 Date: 09 Dec 2017

Reviewer: Stefan Sütterlin

Reviewer's report:

This manuscript presents research in an area of high (and increasing) relevance. Music therapy has frequently shown to have positive effects and can be part of an easily available but cheap intervention. Despite this fact, there is very little systematic research in this area. Most studies suffer from a lack of statistical power and/or potentially confounding factors that limit robust conclusions. This study's main strength is their large sample size, a posthoc design that still allows for the control of many potential confounding factors (e.g., medication, time since admission etc) to make groups comparable.

I consider the manuscript relevant and well written in its very concise way.

Some remarks I wish the authors to pay attention to:

- I recommend to provide effect sizes rather than p-values in the abstract. Statements about an "effect" already imply that it is beyond chance level. Effect sizes give the reader a better picture about the potential relevance for his/her own research and is not dependent on sample size.

- The authors might have a look at some of the wordings and adjust it to the posthoc analysis design. The term "inclusion criteria", e.g., might be better replaced with "selection criteria".

- A potential limitation of this study is the lack of indicators of emotional well-being or mood. Where music intervention improves mood or reduces agitation and anxiety (as previously shown), this might have an effect on mobility (the urge of it, and the behaviour when attempting to be mobile). The authors discuss potential mechanisms in their discussion section accurately, but the limitation of not having collected data on the subjective level (by observation, self-report,
professional assessment) limits the explanatory power. This should be stated as a limitation and/or recommendation for future research.

- More generally, a recommendation for future research should be included in the manuscript.

- The authors might want to explain the relevance of controlling for season of admission for those readers not familiar with it.

- The authors might have a look at for example APA guidelines (or similar) regarding the presentation of multiple linear regressions and accordingly provide both beta and standardized beta weights (instead of only one) and explained power (adjusted R-square). This helps to compare this regression's results with regressions from other articles.

- The authors may also add effect sizes to the results section/tables (cohen's d), as this would allow for a comparison with other music intervention effect sizes previously reported in e.g. meta-analyses (see e.g. Pedersen et al., 2017).

- The literature discusses various ways to apply music intervention for elderlies, for example as passive listening or active participation, with self-selected music or "prescribed" music, in individual or group settings. To make the inclusion of this paper into later overview articles easier, I suggest to be very careful with providing the exact information/grouping of this study by describing the characteristics more detailed (along these mentioned criteria: did the participants have an influence on the music played, did they participate actively or just listened, how large were the groups, perhaps also describe the type of music) in the method section. In the discussion section it should be made clear that other ways of conducting music intervention may have yielded different results and that the generalization of these results might be limited along these categories.

- The effect sizes could be compared to the context of other studies investigating music intervention, may it be with similar or different populations, with similar or different presentation modes.
I hope that these recommendations will be helpful for increased comparability and replicability of this study in the context of music intervention research in elderlies.

**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.

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.