Reviewer’s report

Title: The relationship between physical activity levels and symptoms of depression, anxiety and stress in individuals with Alopecia Areata

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Reviewer: Francis Quinn

Reviewer's report:

This is a nice, short introduction and method examining relationships between physical activity and mental health in a group whose experiences have been under-researched. The design is a simple cross-sectional survey and I liked the succinct message of the abstract. The choice of IPAQ and DASS as the measures seems appropriate and the measures are generally well-described in the methods section. Most of the paper is well-written in an appropriate scientific style.

While I like the concept of the paper, I think some improvements would make the methods stronger and better able to answer the study's aim.

Firstly, in the introduction I didn't feel clear about the justification for the research and the final sections of the introduction would benefit from rewording to make this clearer. It is an extremely short introduction and would benefit from including more material, if word limits allow.

Secondly, I was left wanting more information about the sample; what was the average age? What about gender? I also would like to see reference to statistical power; was 83 a sample size intended to reach a certain level of power, or as many participants as could be recruited? If the latter, a post-hoc power analysis (perhaps using G*Power software) would be useful (power might have been included in the results which I haven't seen).

Thirdly, the data seem to have been made into categories for analysis by the chi-square test (e.g. IPAQ data as 'meeting' or 'not meeting' activity guidelines, though scoring for the DASS isn't mentioned). Converting numerical data to categories is an unusual choice because it "throws away data" and reduces the power and thus ability to detect significant effects if present. Can you provide a justification for this unusual choice of analysis, or otherwise re-analyse the data using continuous scores for the IPAQ and DASS (i.e. not categories)? Typical analyses might be correlations and linear regression.

Fourthly, in the "Statistical Analyses" subsection, mention is made of quality of life as one of the variables in the three-way chi-square analysis. This is the first time it is mentioned and isn't included in the introduction, study aims or method. If this variable is part of the analysis it needs to be added to these sections.
Finally, in the "Statistical Analysis" section, Cramer's V is described as being used to "test the significance of the chi-square results obtained"; I think this should read that Cramer's V was used as a measure of strength of association or effect size.

Overall this paper has potential, but I think it needs some improvements to meet the standard needed for publication. These are mostly to do with a) the manuscript and b) the analysis, the latter needing either further justification or re-analysis using non-categorical data. The improvements are all feasible and I encourage you to make these improvements as you develop the manuscript further.

Dr. Francis Quinn
Lecturer in Psychology
The Robert Gordon University
Aberdeen, Scotland.

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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