Reviewer's report

Title: Senior orienteering athletes as a model of healthy ageing: a mixed-methods approach

Version: 3 Date: 30 December 2014

Reviewer: Becca Jordre

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Major Compulsory Revisions

1. Your purpose assumes results prior to your investigation. The assumption made is that a group of older adults who participate in orienteering are a model of healthy ageing. Throughout the paper's results and conclusions it does not appear that you allow for the possibility that some of these older adults are not a model of healthy ageing, yet they still participate. Aspects that do not fit the pre-conceived model are explained away in your discussion of the results. If this is a scientific investigation of an active population I would treat it as that and then determine if it is indeed a "healthy" active population or an active population despite some health issues. Rewording your purpose to investigate/explore/characterize an active population rather than a "healthy" population is advised.

2. Your purpose also states that you wish to identify factors of importance in order to promote health among older adults. However, you did not ask your focus groups specifically about health promotion. I would change this statement in your purpose as it is not addressed by your methods. Based on your methods it appears you hoping to describe this active population.

3. Your discussion suggests that you have determined an appropriate way to promote healthy aging. Your results did not determine this but could "suggest" options that "may" work. Please change the wording to more accurately reflect the nature of your findings.

4. In your Results, page 14 line 280 you report that the median level of physical activity was 83.3% despite six of the 122 having reports at 50% or lighter. You offer the explanation that this could be due to higher levels of activity in the summer months. Those 6 who are less active may be of great interest to the reader. If you are able to report their summer and winter scores we may learn that they are participating without regular exercise or that they are only exercising when they are "in season". A figure with summer and winter scores would help the FGAS results.

5. Results page 14 line 294. If you are able to report whether the same 6 were low on HADS that were low on FGAS it would be helpful. You report that 2 were had "probable mood disorder" later in your results, but if the other 4 were also low, or were not low, on HADS it would be meaningful. Please clarify these results in the manuscript.
6. I am confused by the organization of the FGD results. You give an example of "self-related" factors as "mental wellbeing" in line 302 page 15 but then leave "feeling mentally stronger" in line 311 under Body-related Health. Looking at the figure from the Algilani article I would place "mental wellbeing" as reported by the men in your study in the "self" category. I think it is a great idea to categorize your FGD information into these three corner-stones but it appears that your Tables also stray from the way the categories are defined in the original article by Algilani. Another example is putting "the ability to move and walk, which would be "autonomy" or "activity" under "body-related" in Algilani's article and you've placed them in "Self". Please re-consider this organization to clarify your results to the reader.

7. You have concluded that the "main drivers" are short-term values such as "enjoyment and passion" while neglecting the fact that the majority of these athletes started orienteering in their 20's. After reading this paper I feel the need to market life-long sport to 20 year olds. It would also be difficult to support the conclusion that promoting the short-term values of enjoyment and passion are the key to motivating this population based on what you have presented. Please look again at all of your findings. It appears your discussion could be re-organized (particularly with the categories noted in #6 above) and your conclusion should be re-written to emphasize key findings more than opinion.

8. Include limitations of this study. Some to consider 1) Athletes were self-reporting their health 2) FGD were a sample of convenience and may have self-selected as the more healthy athletes 3) results were not compared to normative data thus, not allowing us to know if these individuals are scoring at a level higher than community-dwellers

9. The results in figure 3 make it clear that these older adults scored themselves frequently near the score maximum. However, without seeing any raw scores or reference norms it is hard to quantify the difference in their perceived health as compared to the health of the general population. Including normative data converted in the same way or raw data compared to normative data for each of the scales would give your results more meaning to the reader and those wishing to cite this work.

Minor Essential Revisions
1. Correct abbreviation errors. You refer to FGD in your abstract after writing out "focus group discussions" but I do not see where you identify FGD in parentheses as an abbreviation.
2. You introduce IQR as an abbreviation before you write it out.
3. Abstract: page 3, line 25, insert "a" in "may act as "a" reference population"
4. Background page 4 line 53 the sentence ends without a name, it appears you may be planning to reference the authors of reference #2?
5. Background page 4 line 55, insert "The" before "World Health Org"
6. Background page 4 line 65, delete "the" before existing
7. Background page 4 line 66, change to "gold standard" not "golden"
8. Background page 5 line 79, number the Ottosson reference.
9. Methodology page 7 line 125, change quantitative to quantitatively.
10. Methodology page 7 line 129 change to "enrolled to compete in the 2013 O-Ringen, aged..."
11. Please note whether the O-Ringen orienteers remained identifiable or anonymous when answering.
12. Methodology page 8 line 141 change to "information" to "informational"
13. Methodology page 8 line 147, change "in to" to "into"
14. Methodology page 9 line 163 change "was asked" to "were asked"
15 Methodology page 9 line 172 change "were" to "where" and "subject" to "subjects"
16. Methodology page 11 line 208 change to "participants to continue an active discussion"
17. Methodology page 11, under Follow up questions -phase 3 line 219 change to "the alternatives given were" and in line 221 "where each item was..."
However, this makes it sound like you only asked one question in phase 3. Reword to make it clear what you asked in this follow-up survey.
18. Results page 15 line 301 "related to one..." and line 303 "described"
19. Results page 15 line 301. Please reorganize so that these are in the same order as they are presented in the paper and Table 3: "1)body-related 2)self 3)external"
20. Results page 16 line 328 "utmost" and line 331"basal hygiene" is not common phrase, consider re-wording.
21. Results page 17 line 351 "feeling good..."
22. Results page 18 line 371 "physically"
23. Discussion page 18 line 384 "a map"
24. Discussion page 18 line 386, "until (competition) starts". Revise.
25. Discussion page 20 line 438 re-word.
26. Discussion page 20 line 422 delete "the" before the word "nature".
27. Discussion page 21 line 460 change "as" to and"

Discretionary Revisions
1. You consistently refer to this as a "new" model of healthy ageing. I suggest referring to it only as a "model of healthy ageing".
2. For ease of reading it may be helpful to abbreviate OR for O-ringen and LO for local orienteers as the methods and results are, at times, confusing. This would allow quick reference to which population is being referred to.

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests: I declare that I have no competing interests below.