Reviewer’s report

Title: Exploring the Feasibility and Acceptability of a Mixed-Methods Pilot Randomized Controlled Trial Testing a 12-Week Physical Activity Intervention with Adolescent and Young Adult Cancer Survivors

Version: 0 Date: 09 Aug 2019

Reviewer: Alex Mitchell

Reviewer's report:

I would like to thank the journal for giving me the opportunity to review this paper.

The trial used two strategies to recruit participants. The first relied upon participants being referred by their healthcare provider, after giving consent to have their details passed to the researchers. The second strategy involved participants contacting the author themselves. The authors reported a recruitment rate of 100%.

One issue I have with this estimate is that it doesn't appear to take into account the participants who were screened eligible by their healthcare provider, but did not give consent to be contacted by the researchers. In my opinion these participants should be considered as eligible but non-consenting, which would decrease the estimate of the recruitment rate. Another issue I have is that the second recruitment strategy is likely to lead highly motivated participants to approach the researchers, and as a result these participants were likely to consent to be in the trial.

The authors themselves state that 'it is likely that highly motivated survivors consented to be contacted and subsequently enrolled in the trial'. It seems to me that if a larger RCT is to be carried out, survivors less motivated that those recruited in this study would need to be approached to participate in the main trial. It may then be the case that these survivors would be less likely to consent to participate in the trial, and would also be less likely to complete follow-up.

As a result I believe the recruitment and retention rate estimates presented in this paper are unlikely to be accurate estimates of the rates that would be observed in a larger RCT, and for this paper to be published I would like to see this discussed as a major limitation of the study. This also applies to the estimates of the amount of missing data.

However, I do believe this paper can offer some useful information on the acceptability of the intervention to participants, as it appears that despite the participants being highly motivated, they still appeared to struggle to complete all of the sessions. To achieve this I think the paper needs to be rewritten as a feasibility study looking at the acceptability of the intervention, and perhaps laying the groundwork for a future pilot trial looking at whether the additional recruitment strategies the authors propose lead to adequate recruitment and retention rates.
I give some minor comments below:

Afterwards, participants were randomly assigned to either to the intervention group or to a wait-list control group by an independent researcher using a random number generator without an established allocation ratio.' I'm not sure how the randomisation could have been done without an allocation ratio?

'most had been diagnosed with breast cancer (n=7), and 50% reported managing at least one other physical or…'. It would be useful if when giving the number diagnosed with breast cancer you also gave the percentage, and when stating the number managing at least one other health condition you gave the number of participants.

'On average, participants were 32.84 years', I think the word old needs to be added after years.

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