Reviewer’s report

Title: Adherence to daily dietary and activity goals set within a Māori and Pacific weight loss competition

Version: 0 Date: 10 Sep 2018

Reviewer: Reviewer 2

Reviewer's report:

PEER REVIEWER COMMENTS: To view the full report from the academic peer reviewer, please see the attached file.

REVIEWER COMMENTS FROM REPORT: The intervention itself is well thought through and the incorporation of a culturally relevant theory and approach is one of its strengths. However, the authors could also incorporate self-determination theory (SDT) (Deci & Ryan, 2000, American Psychologist, 55(1), 68-78) into a discussion of the results. Flexibility to chose behaviours is a big part of 'autonomy'. The team environment, all with a common goal to lose weight, provides 'relatedness' and 'competence' is reinforced by points. The tenants of this theory are well grounded by empirical evidence and have been tested in a wide variety of populations.

The method of evaluation could be significantly improved with more of a qualitative approach to assessing the barriers and facilitators to adhering to the program, such as focus groups with teams that completed the program versus those that did not.

The paper itself explains the theory well but not necessarily how the theory was incorporated into the development of the program and how it links with the daily goals. The paper is a little challenging to follow as it jumps around and needs to flow more sequentially.

Identifying which activities were performed the most/least and weekday/weekend day differences are important data. It is intriguing that both exercise day and sweet treat-free day were performed the least. From these data the interpretation that future weight loss interventions should differentially incentivise week days and weekend adherence seems an intuitive idea.

Overall, I feel this is an important contribution to the field and that this research adds value to the literature. The population is also novel and at increased risk of obesity/cardio-metabolic disease risk.
REQUESTED REVISIONS:

Design:

Completion/adherence to activities is self-report, this is a serious limitation.

The authors mention a control group was used, although they haven't presented any control group data? Furthermore, why were outcome measures not collected at week 48 so this is comparable to the intervention?

The drop out of participants, weakening the statistical power is a concern.

Pg 5. Line 31. Bathroom scales, therefore, was weight self-reported? Was this the same for waist circumference? Do you think there are any limitations of this approach given there was a monetary incentive for the best team. You have touched upon this in the discussion but a reader should not have to wait for the discussion for this to become clear. Please emphasise that anthropometrics were measured by researchers.

Pg 6. Line 2. Were focus groups or patient and participant involvement (PPI) conducted prior to the start of the trial to identify important goals for the participants? Did they have an opportunity to inform the ranking of these behaviours based on what they felt were important. You mention in the discussion that 'for weight loss interventions to be effective, prescribed goals need to be acceptable to participants, able to be completed by them and congruent with contextual demands in their lives'. Therefore for the success of your intervention it seems a prior participant involvement would be of utmost importance to inform the behaviours chosen and points system.

Pg 7. Line 20. It's a shame that individual data is not available as this would be more informative than having data presented as only 5 teams.

Execution:

Pg 7. Line 50. 17 + 1 + 1 = 19 teams yet on Pg 8. Lone 1 you say '20' active teams. Which number is correct?

Figure 4 is somewhat misleading, surely the adjusted scores (for active teams is the most important). The total of 20 teams is of course going to give you a higher reported number of completions than 7. Moreover, there are inconsistencies throughout the manuscript, 21 active teams or 20 or 19. This is unclear.
Pg 4. Line 43. Self-complete(d) questionnaires. Where were these questionnaires completed/administered? In the participants own home (web-based)? A research setting? What was the time demand/burden for the participants? Are these questions valid/reliable to capture this information? Can these be provided as supplementary information? I feel a stronger description of these measures is required. While you’ve referred the reader to reference [18], the methods still need to be described in adequate detail in this manuscript.

The manuscript would benefit from a thorough review for English, sentence structure etc (see examples below).

Title: Rather than diabetes type 2 risk this should be written as type 2 diabetes risk. Consider using a semi-colon to split the title.

Pg 2. Line 2. Background: Insert 'populations' after Māori

Pg 2. Line 11. Change 'the goals' to 'these goals'.

Pg 3. Line 28. Pacific and Māori. I feel that you need to expend these terms throughout the manuscript, either end with 'populations', 'individuals', 'islanders' or 'adults'.

Pg 3. Line 42. Change to: 'primary lifestyle treatment recommended for obesity'.

Pg. 9. Line 20. Component(s).

Pg 12. Line 29 - 40. This sentence is too long and difficult to follow. Please consider revising.

Interpretation:

The intervention has so many components that are linked to successful weight loss (done with family and friends, the use of financial incentives, the freedom to chose behaviours etc.). This makes it difficult for the authors to determine the most importance aspects of the intervention.

The fact it ran over an extended holiday period seemingly had a significant impact on adherence. While this real world approach could be deemed an advantage this has huge implications on your findings. At what week in the intervention did this holiday period occur?
Pg 6. Line 26. Is it possible to provide some information on the participants/teams that were excluded? This could be important information, were they younger/older, likely to be male/female, lower socio-economic status, higher body mass at baseline etc.

Pg 9. Line 59. 'Most of the participants were employed'. But teams report that challenges were more likely to be completed on weekdays than on weekends. Surely participants would have more time to perform activities on weekends, assuming they work Mon - Fri 9-5, what are the implications/considerations of this?

Pg 10. Line 7. Is there a distinction between lack of reporting and lack of compliance? For example, just because teams didn't report an activity might not mean it wasn't performed. It is possible for participants to under-report activities/behaviours.

Pg 10. Line 22 - 27. Does your data agree with this? You mention that participants in this intervention completed stand up day most frequently. Therefore, does the easy of doing something (standing up) override an enjoyable activity LTPA?

Pg 11. Line 1. Is there a difference in the impact of financial incentives if it goes to the individual (for their own gain) vs. external parties (a charity, sports clubs etc)?

ADDITIONAL REQUESTS/SUGGESTIONS:


Pg 2. Line 19. Team(s)?

Pg 2. Line 39. Add in teams i.e …. (N=130) who began, only five 'teams' performed….

Pg 2. Line 44. Lower value task. It is not clear what you mean here as you have not discussed low or high value tasks in the methods or introduction. Why are some more important than the others? Who decided this, the participants themselves or the researchers and was this based-on existing empirical evidence.

You mention incentives throughout the abstract although it is not clear what you are referring to here. Are these monetary incentives, rewards, competition points? This should be emphasized.
Pg 3. Line 24. High rates of what? Although mentioned in the previous sentence you should still specify you are referring to obesity.

'Behaviour change' could be changed to 'behaviour change interventions' i.e. 'believed to improve adherence to behavioural change interventions [11].

Pg. 4. Line 9. Can WEHI be expanded?

Pg 4. Line 52. Why were smokers/nicotine users excluded? What was the rationale here? What if participants started smoking over the 48 weeks? Was this information captured?

Pg 7. Line 27. Have you defined RC?

Pg 7. Line 37. This might be in accordance with Journal guidelines, but why does ethical approval appear at the end of the methods section. It would be common practice for this to appear where you discuss the trial participants in the methods.

'For the teams that completed the competition, the nine challenges appeared to be equally viable.' This is stated more than once but elsewhere in the paper states that some challenges were deemed much more challenging than others so needs to be clarified, i.e. in the Results section- 'RC reports noted that participants found the Exercise Day and Sweet Treat-free Day the hardest.'

'Adherence on weekends could have been undermined by participants perceiving WEHI to be more like 'work', an activity belonging to work days, rather than 'fun'.-' Is there any evidence of this thinking in the data- if not, this might be too presumptuous to include

The Figures are of poor quality for a publication, especially 4-10 (gridlines and borders should be removed etc.). The authors might want to consider using panelled Figures i.e. 1a, 1b to avoid having 10 Figures (which might exceed the Journal guidelines).
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.

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

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.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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