Author's response to reviews

Title: Feasibility, acceptability and potential effectiveness of a mobile health (mHealth) weight management programme for New Zealand adults

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Author's response to reviews: see over
Feasibility, acceptability and potential efficacy of a mobile health (mHealth) weight management programme for New Zealand adults

Response to peer reviews

Referee 1

1. Although described as a pilot study, the work presented here is more like a feasibility study. Pilot studies are usually mini versions of a full phase III trial and generally include randomisation (if the definitive trial is to be randomised). Please change ‘pilot’ to ‘feasibility’ throughout.
   Author response: This has been changed throughout – see highlighted text.

2. Behavioural and complex interventions such as this one are not expected to have an impact on efficacy. It is more accurate to describe the potential impact on weight as ‘effectiveness’. Please change throughout.
   Author response: This has been changed throughout – see highlighted text.

3. Presentation of effect of the impact with this sample may be necessary to indicate trends and in order to calculate sample sizes for future research. However, it should not be used to infer any impact of the intervention. Given the numbers, I also feel that text on page 13 describing sensitivity analysis should be removed.
   Author response: We have endeavoured to ensure that it is clear that we do not infer impact of intervention. We have removed the text describing the sensitivity analysis.

4. Given the nature of the proposed intervention, I would like to see greater discussion on the level of impact that they would expect. This approach may be deemed as a type of public health intervention with great reach. As such, even small reductions in BMI would have a large impact on society. Clearly, a full economic evaluation would be required to demonstrate this. However, this has not been discussed.
   Author response: We have added discussion of this on page 17, lines 312-313.

5. While it is common to explore the feasibility of both the intervention and a future trial within this type of study, it is important to distinguish which elements do which. This is confusing in places. Although a main aim of the study is stated as ensuring it is a feasible approach for a future trial, there is no indication of how this study really informs the next trial. Instead, the focus is on the intervention improvement. Please clarify throughout and discuss how findings will help designing the future trial.
   Author response: We have added a new section to the discussion that talk about how the feasibility study findings will help designing the future trial (page 18, lines 327-333).

6. In relation to the last comment, it would be useful to see what the sample size of the next definitive trial would look like (even if presenting a few options).
   Author response: We have added a sample size estimate for a definitive trial on page 18, lines 327-333.

7. Abstract: In results, ‘follow-up’ is incorrectly written
   Author response: Now corrected

8. Abstract: Remove ‘Most’ from Results text, which should not be used to describe 66%.
9. **Abstract:** Please add timelines to results (e.g. “....And 96% responded to at least one text data collection question over x weeks)
   **Author response: Now added**

10. **Abstract:** In conclusion, indicate what you feel needs further improvement. The intervention? The trial?
    **Author response: Now clarified**

11. **Methods:** Please provide more detail about the development stage, including who the experts were (their roles/expertise), and how many experts and members of the public there were.
    **Author response: These details have been added on pages 6 and 7 (lines 48-51 and lines 60-63).**

12. **Methods:** Provide more information on the method of collection for programme adherence.
    **Author response: Details have been added on page 10 (lines 137-139)**

13. Results state that participants reported reading ‘all’ or ‘most’ of text sent. How was this measured? E.g. was it open response or categorical etc?
    **Author response: Details on the categorical reply options have been added on page 10 (lines 137-139)**

14. Results, Programme adherence: remove word ‘most’ when describing 66%.
    **Author response: Now removed**

15. **Results:** Similar to abstract, please provide more information on the time-lines for responses/log-ins etc.
    **Author response: More information has been added**

16. **Acceptability of programme....:** “With regards to text messages, the characteristics people liked the best...........and the clear practical tips they provided (15%)”. Authors are asked to state why they feel that 15% warrants liking something the best (e.g. other options only reported by 1%) or remove/alter text.
    **Author response: We have changed the wording to reflect that these were features people reported liking as opposed to ‘liking the best’ (Page 13, lines 217-222)**

17. **Discussion:** Related to a comment above, please discuss how this study may be limited with the length of follow-up. Unless the definitive trial is planning a final follow-up of 12 weeks (i.e. post intervention), these data will not be able to give an indication of loss to follow-up and the spread of data for longer follow-up (to help with sample size calculation).
    **Author response: We have added a section to the discussion as recommended (page 15, lines 263-265)**

18. **Discussion:** In the section comparing loss to follow-up of previous research, please indicate / compare the length of follow-up age.
    **Author response: Details of study durations of follow-up have been added (page 15, lines 265-269)**

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**Referee 2**
1. Programme development – in this sub section, it was mentioned that the mHealth programme was based on certain criteria, including personalisation of messages. However, the results of the study showed that the messages were deemed to be generic, impersonal, irrelevant etc. by participants. As the two seem to contradict each other, additional explanation on the level of “personalisation of messages” in the method section is needed e.g. to what extent/level the messages personalisation was integrated in the mHealth?

Author response: Details of personalisation and tailoring have been added on page 7, lines 73-75

2. Study measures – in this subsection, it was reported that blood pressures were recorded at baseline and follow-up visit. However, this data seems to be missing in results sections and no further explanation is given.

Author response: Baseline blood pressure data were provided in Table 1. We did not report follow-up data in the original version of our manuscript because there was no significant change over time. We have now clarified that there was no change in the revised manuscript text (page 14, lines 239-240)

3. Results: Study retention – “Over the 12-week study period, four participants withdrew from the study and one person was lost to follow up”. How does this tally with a total of 36 completers?

Author response: A further 12 participants did not attend their 12-week follow-up appointment. This information has now been added to the manuscript text (page 12, line 181)

4. Programme adherence (first paragraph) – “During eight-week intervention phase, most participants (n=35, 66%) reported reading “all” of most “text” sent”. How was this information obtained? The methods section (study measures subsection) does not seem to cover or explain this. Also, why does the number of participants go down from 36 to 35?

Author response: These details have been added on page 10 (lines 137-139). It was 35 of the original 53 participants, which has been clarified on page 12 (189-190).

5. Discussion: While the limitation of the study was briefly addressed, no discussion is made regarding the short-time frame of the study (i.e. 8 weeks for texts responses and 12 weeks for website activities) and how this could potentially affect the study measures.

Author response: A section discussing these aspects has been added on page 15, lines 263-265.

6. Results: Programme adherence (first paragraph): “… In total, 210 responses were received to the step count questions (39% response rate excluding duplicate responses and allowing for withdrawals) and 250 replies to the goal success questions (55% response rate). ” The use of percentages here is confusing as it was not clear whether they were calculated based on texts sent to 53 or 36 participants. Perhaps additional information could be added to clarify these e.g. adding the total number of expected responses.

Author response: The expected number of responses has now been added to the manuscript. 49 participants (excluding 4 withdrawals) x 8 weeks = maximum 392 possible responses per question (lines 194-196)

7. Programme adherence (second paragraph): “…. Of the study to 0-2 hits/week in weeks 13-16”. The mHealth programme was a 12 week study. Is the “weeks 13-16” typo?
Author response: This relates to the total 16-week duration of the study spanning recruitment to completion of all participant follow-up (September to December 2012), which has been clarified on page 13 (line 203)

8. Change in body weight and BMI at 12 weeks – Please adopt APA style while reporting the statistical results.
   Author response: Now corrected

9. Discussion: Please make sure that the references on the second last paragraph (i.e. [27] and [22]) are cited correctly.
   Author response: We have checked and these are cited correctly

Referee 3

1. Abstract Methods refer to an 8 week programme – but this is confused by 12 week measurements in results and with text Page 7 line 6 and page 9 line 121 describing a 12 week programme.
   Author response: The study timeline has been clarified on both pages

2. Abstract Results- provide mean BMI for perspective of weight loss.
   Author response: Now provided

3. Background Page 5 line 11, indicate NZ Dollars.
   Author response: Now added

4. Background Page 5 line 20, insert are unsuitable
   Author response: Inserted

5. Method page 6 line 49, clarify target population input from priority ethnic groups in study aim
   Author response: Clarified on page 7 (lines 60-63)

6. Method page 7 line 54, clarify target population see page 14 line 225, page 16 line 28
   Author response: Details of target population have been added on pages 6 and 7 (lines 48-51 and lines 60-63).

7. Method page 7 line 69, change to and to rate
   Author response: Changed

8. Method page 8 line 93, change to advertisements
   Author response: Changed

9. Method Page 9 line 104, include all measures in Table 1 i.e. sleep, alcohol, comorbidities
   Author response: Added

10. Method Page 9 lines 120-124, would be helpful to outline rationale for physical activity and dietary self-monitoring in background and in reference to discussion page 15 lines 250-255.
Author response: The rationale has been added (line 75-76) including an appropriate reference (17). The same reference is cited when outlining self-monitoring processes on lines 131-132

11. Method Page 10 lines 133-134, this sentence somewhat conflicts with abstract aim to evaluate the programme for ethnically diverse adults. Please clarify.
Author response: Clarified in line 146.

12. Method Throughout methods section please remove commas before ‘and’
Author response: These have been removed throughout

13. Results Please provide age range of participants (Table 1)
Author response: The standard deviation is provided in Table 1 as is usual for continuous measures. We have added the age range to the text of the results on page 11, line 172.

14. Results Why was BP recorded?
Author response: Because weight loss often leads to reductions in BP. This has been clarified on page 9, line 121

15. Results Page 11 line 159, insert results for household income
Author response: Now added

16. Results Suggest revision of participant feedback responses Table 2 to avoid repetition in discussion
Author response: We are unclear what the reviewer meant by this. We have endeavoured to ensure that there is minimal repetition between the tables and text.

17. Results provide n% in same column
Author response: This has been done

18. Results It is unclear why feedback was not provided on the toolkit.
Author response: Feedback on the toolkit has now been added to Table 2 and page 14 (lines 225-227)

19. In general the discussion provides a comprehensive overview of the implications of the feasibility study findings to inform a larger study trial. Of the 154 adults who responded to the advertisements 60% were screened for eligibility. What factors might be involved in losing participant interest? And dropout rate of target male Pacific participants? How significant is the problem of attracting participants with a higher income and educational level? How can this be addressed.
Author response: When the target sample size was reached, recruitment was closed and remaining registrants were not screened i.e. it was not that participants lost interest. This has been clarified on page 11 (lines 161-162). The need to engage high needs groups like young Pacific males has been addressed on page 17, lines 318-325.

20. Personalised messages were a desirable programme component identified from focus groups page 7, line 56. It is unclear from the results whether the programme was adapted to provide tailored and personalised messages. Please discuss importance of this for engagement of future participants.
Author response: This has been addressed on page 17, lines 318-325.
21. The toolkit provided an essential programme module. It is unclear if this hard copy information was used and which aspects of the content were helpful. 
Author response: Full feedback on the toolkit has now been added to Table 2.

22. Limitations of the study need to be more clearly addressed in light of the above. 
Author response: This has been addressed on pages 15-18 (see above for detail).

Additional comments:

We have checked the journal formatting requirements and believe the current format is now consistent with them.