Reviewer's report

Title: Examining the influence of a text message-based sleep and physical activity intervention among young adult smokers in the United States: a randomized controlled trial

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Reviewer: Nancy Gell

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The authors present an interesting study that capitalizes on an innovative study design. The intervention uses a relevant delivery mode to the target population of young adults (text messages) for sleep and physical activity, behaviors known to wane in the young adult population. The question of interest is well-defined and the paper is well written with conciseness and clarity. Of concern are some design issues described below.

Major Compulsory Revisions

1. Abstract Background: It would be more transparent to alert the reader to the fact that the target population was recruited for a smoking cessation intervention and did not express any plans/interest in changing sleep or physical activity behavior. The last sentence of the background alludes to this but is not explicit.

2. Is there any rationale for targeting 2 behaviors for the control group? While both may be important behaviors to target for this population, it sets up the study from the start to be biased toward the null as the authors a) target two very different behaviors and b) attempt to intervene on behaviors that were not identified as being targets for change by the subject population.

Discussion

3. Last sentence of paragraph 1: This sentence summarizes my primary concern with the study. Is there any literature that supports the alternative? (i.e., targeting people for behavior change who may not have any interest or motivation to change?). I appreciate the innovative design of study with a control group that also receives an intervention, but question the premise of expecting change on two behaviors not cited by participants as targets for change.

In general:

4. The Hurling reference is not the best comparison study. Not only is the target population very different (adults, mean age 40) but the intervention had text messages as 1 component among many (internet content, email, and self-monitoring with an accelerometer) which is substantially different than a text message intervention in isolation. Also, the Hurling study was conducted before the widespread adoption of Smartphones so we can’t assume the study participant received the email and internet information on the phone, similar to a
text message. It might be worth looking at the Prestwich, Perugine, Hurling study of text messaging for physical activity in college students (2009). Otherwise, a better comparison would be a study that evaluated the efficacy of text messaging alone or at least as the primary component (even if you can’t use the same comparison population).

5. Since the study is presented as an intervention to itself, the authors should justify why the control/sleep/physical activity group received text messages at the same rate as the smoking cessation group and in particular any justification for up to 9 messages/day re: sleep and/or physical activity.

6. It would also be helpful to include examples of the text messages used and more details about the messages: Were they sent at the same time each day, did everyone receive the same messages, did they receive messages about sleep and physical activity on the same day, etc.

Minor Essential Revisions

1. Table 2 and Table 3. The superscript notation is confusing. It appears the superscript “a” indicates how the model was adjusted (for baseline sleep only) but it’s not clear what exactly was adjusted (and the corresponding #) for superscript “b”

2. Table 4. There is a “b” superscript but no reference “b” in the actual table. Looking only at the table (and not the main text) it is difficult to ascertain if the “Adjusted difference” in the 2nd to last column on the left is adjusted for baseline PA only or baseline PA change in average sleep quantity etc.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests