Author's response to reviews

Title: A survey to assist in targeting the adults who undertake risky behaviours, know their health behaviours are not optimal and who acknowledge being worried about their health

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Author's response to reviews: see over
Reviewer 1

1. What are the (a) objectives and (b) hypothesis of this paper?

   Additional details on the objectives and hypothesis of this paper have now been added to the Introduction.

2. The Method section is too long and too detailed about data collection of the whole survey. I suggest this section should be divided into 2 sections: data collection and statistical methods. The data collection method can be much shorter. The authors should make it more concise but informative. If the readers are interested to see more details of data collection method, they can read from the survey report.

   The methods section has now been divided up as suggested. In addition, components of the data collection have been omitted.

It was mentioned that the data for this study is from the mixed method study, using both questionnaire and semi-structure interviews. However, I think only the data from the questionnaires were used for the analysis. If I understand correctly, it should be mentioned clearly.

   This has now been more clearly stated in the first paragraph of the Methods section.

It would be very helpful if the authors would provide the definitions of each variable used in this report and explain how each variable was measured. As of now, it’s still not clear, for example, how ‘short term alcohol risk’ is defined and how to measure that who are the low risk, risky and high risk.

   Additional detail has now been included about the risk factor variables.

3. Explanations about statistics used are not quite understandable. For example, the explanation for using chi-square test and the reason for selecting only variables with a p-value <0.25 at the univariate level to include in the logistic regression models. Also, what was the purpose of using those models?

   Additional detail has now been added to the text in the statistical methods section.

4. In the Results section, it was mentioned only that that table 1 and 5 highlights the demographic characteristics of the sample and the result of multivariate analysis, respectively. My questions are what are those highlights? They should be pointed out.

   Additional detail has now been added to the text.
5. I don’t know why some tables were read in the Discussion section. I think this section should discuss the results and compare them with the theories or findings of other research work.

*The majority of the second paragraph of the Discussion section has now been moved to the Results section. Additional comparison points have now been added to the Discussion section.*

**MINOR ESSENTIAL REVISIONS:**
1. Please make sure that the % mentioned in the text is the same as in the table. One example is in paragraph 2 of the Results section which stated that 53.1% not undertaking sufficient physical activity, while it is 46.9% in the table.

*We thank the reviewer for this correction.*

**Reviewer 2**

**Major Compulsory Revisions**

1. The background to the paper is quite confusing, with the issue of “vulnerability and taking health related behavioural action” raised in the first paragraph and the hypothesis, but never expanded upon and seems to fade within the rest of the paper. Are the concepts of worry and vulnerability related, are they interchangeable?

   Worry and vulnerability were interchangeable and to alleviate confusion ‘vulnerability’ has now been omitted completely from the paper.

2. The concept of worry is raised, but not well explained or explored beyond its one dimensional face value. In the second paragraph worry is related to seeking information and more positive attitudes towards interventions and behaviour change, but this is not greatly expanded upon and seems important in the context of the paper.

   The authors believe that by moving some of the Discussion to the Introduction, especially the paragraph expanding the concept of worry and the relationship with perceived risk (as suggested in point 3 and 28 for this reviewer), this problem has been alleviated.

3. The conclusion section of the manuscript contains explanations around several concepts that would have been better placed in the introduction section of the paper.

   Three paragraphs that were in the conclusion have now been moved to the Introduction (with some changes).

4. Overall, I did not find the background provided a sound theoretical basis for exploring the relationship between behaviours, perceptions of health behaviours and worry. The study seemed to explore different concepts without any justification, and it was unclear how all these concepts would be used to assist in targeting adults, as the title suggests.
We believe with the additional paragraphs included in the Introduction, the concepts, and justification of the analysis, are now clearer. The focus of this paper is on providing additional targeting information and not about the theory and concepts per se.

5. The hypothesis of the paper does not seem to match the background, data or discussion. Where are the concepts of “feeling vulnerable” and “more likely to be persuaded to change their unhealthy behaviours” measured in this study?

The vulnerability concept has now been dropped and the hypothesis has been reworked.

6. The study hypothesis seems to me to require the concepts of health behaviours, perceptions of health behaviours and worry about health which is what was measured, or a better explanation as to how these variables represent the hypothesised concepts.

Additional details on the hypothesis have now been added. In addition, clearer detail on the structure of the study and methodology should alleviate this confusion.

Methods:
7. The data appears to have been collected from a broader study, of which selected variables were confusing, as they appear more relevant to addressing the proposed research question than the variables used in the analysis. Overall, the data collection method is sound and includes several strategies well known to achieve high response rates and valid data.

Alterations to the methods section have now been made making it clear that this paper is a sub-study of a larger research project and why the variables were included.

Major compulsory Revisions
8. The response rate was 43.8% which seems low, given you sent a letter. This should be commented upon in the discussion and whether the sample is representative of the population at least on demographic variables.

Additional details on response rates have now been included in the limitations section of the Discussion.

9. Was there any validation around the questions about perceptions of risk factors? Concepts like “enough” “balanced” “good for you” are very subjective, how can you be sure people understood these concepts. What is a “balanced diet”? How were any of the additional variables included in the survey validated?

Regarding the risk factor questions, details on validity and reliability have now been added to the text. Unfortunately, no validity testing of the perception questions were undertaken although the authors would argue that these concepts are not subjective and are easily understood.

10. It seems an omission for the purpose of this study to only ask people who perceived themselves to be at risk about whether they worry about their health behaviours. Maybe
people who perceive their health behaviours to be “good” do so because they worry about them? This has implications for any conclusions you might make about health interventions, unless your target is only for people who perceive they are not meeting their recommendations. Where does this leave people who are worried about their health and therefore take action?

We argue that it is indeed the objective of health promotion programs to change people’s behaviours, for them to take action and that the focus of this paper is the role of worry in that change. We are also only interested in current behaviours and indeed our target group are those who perceive they are at risk and are worried about it. If people have taken action this would be deemed as a successful behavioural change and not the focus of this paper.

11. Page 7 paragraph two. These variables all seem irrelevant to your research question, until they appear in Table 5. These concepts are not introduced in the background. How do you propose these variables fit together in a model, or theory of behaviour change that would help justify their inclusion in this paper?

We believe that the inclusion of these health-related variables (rather than just a demographic comparison) make this study unique and adds to the value of the analysis. All variables assessed have established links to health outcomes, and health promotion programs and were factors that were important in the qualitative component of the earlier stage of the study. That is, although this analysis is a stand-alone piece of work it was very much informed by previous work. This has now been made clearer in the text.

12. Page 7 Paragraph 4. I found the description of the analysis confusing and somewhat misleading. The paper establishes a series of cross sectional relationships and then individual logistic models and at the top of page 8 Line 1 “… most likely to change their behaviour…” This seems a great stretch for the variables being tested and only relates to people who think they are at risk. Perhaps I have just misunderstood this section.

Additional clarification has now been made in this paragraph so that it is clear what analyses were undertaken.

Results:
13. The results section was difficult to read, as it did not step me through each part of the analysis. Simply presenting the range of findings from tables of independent tests was not helpful and there seemed an arbitrary use of results in the text.

Additional clarification has now been added although, because of the complexity of the analysis, reporting some of the results in detail has been undertaken to assist in comprehension.

14. The demographic description does not give any real indication of the sample, beyond age and gender. Given the number of demographic variables reported you could provide a better overall summary of who participated.
We believe we have given a very detailed demographic description of who participated in the survey with 14 different variables detailed in Table 1. Notwithstanding, additional text has been added.

15. I found it difficult to follow what you were trying to draw from Table 3. My interpretation of what was presented is of high levels of agreement between people who perceived their health behaviour to be healthy and whose behaviour was classified as healthy, or people who perceived their health behaviour to be unhealthy and whose behaviour was unhealthy. The only exception seems to be for fruit and vegetable consumption, although you asked if they had a balanced diet, which suggests a limitation of the question, rather than respondents misclassifying themselves. A clearer description of this table is required.

The reviewer’s interpretation of the Table is correct. The authors believe that by adding additional clarification to the methods section on the analyses undertaken, this table is now more easily understood. In addition, an extra column heading has now been included in Table 3. The limitation associated with the fruit and vegetable questions has now been added to the limitations section.

16. Are BMI and psychological distress behaviours?

We agree that they are not behaviours per se and have now changed the Background section to clarify that they are health status outcomes closely related to behaviours and behaviour modification.

17. I am not sure what the statistically different from the “other group” means in the note below the table. What else can it be?

The ‘other group’ has been dropped.

18. As mentioned earlier, the omission of asking all respondents their level of worry is a significant limitation of this study and highlighted in Table 4. Again I found it difficult to follow what you were presenting in the written results from Table 4. My interpretation of the data was that amongst people who perceived their behaviour to be at risk, when it was at risk, but they were not worried about it was about ¼ of respondents for BMI, fruit and Veg, PA and smoking. It was 50% for short term alcohol and 7% for psych distress. It also seemed there were a large proportion of people who were worried and classified as at risk for most groups? A clearer explanation of the findings is required.

Asking respondents whether they are worried about the health effects of their activity/behaviour when they had previously reported that they were satisfied with the level of the activity/behaviour would lack face validity and would not of been acceptable to respondents. This would have resulted in respondent lack of interest in the remaining questions.

19. The results for Table 5 are very well described in your discussion section and seemingly omitted from the results. My suggestion is you move from the discussion those sections that just describe what you found in this Table into the results section.
The detailed results have been moved to the Results section.

20. I still find the inclusion of every variable you can find into these logistic models incongruent with the first part of the analysis. My suggestion is to restructure the paper so there is a reason to ask them from a model/theoretical perspective, or to omit many from the analysis. As one example, the idea that visiting your GP is important to health behaviours. But you haven’t introduced any context for this variable or how it might relate to worry or perceptions of health. You refer to it in the discussion, but it doesn’t have any context to your hypothesis.

Variables were initially (if significant at the <0.25 level) included in the first model. Non-significant variables were then subsequently dropped in each subsequent model until a satisfactory model was achieved. This has now been made clearer in the text. In addition, increased detail on why these questions were included has now been added to the text.

21. Several of the independent variable categories in the logistic model do match the descriptive table. These need to be consistent.

Changes to the demographic table have been made so that the categories match those in Table 5.

Discussion
22. The Discussion is hard to follow with many statements unrelated to the data presented in the paper. I disagree with the first statement of the discussion about the population having an incorrect perception of the risk which I think relates to Table 3, and suggests people are aware of their health behaviour risk. The second summary statement suggests that high levels of population worry about their health, but not everyone was asked this question, only those people who perceived themselves to be at risk. The third sentence is a statement about the findings of the multivariate analysis and does not add anything to help explain the stated research hypothesis. There is a lack of reference to previous work in this paragraph to determine if this is adding new information.

The results of our analysis clearly shows that there is a proportion of adults who believe their risk factor is in the unhealthy range but whose self-reported risk factor measurement is in the acceptable range. The limitation associated with self-report are addressed in the Discussion. Additional clarification has to be added to the text clarifying that only the respondents who perceived themselves to be at risk were asked the worry questions. As previously mentioned the hypothesis has been reworked.

23. Where is the evidence from your data about what people’s intentions are towards changing their behaviour in the foreseeable future? You don’t really even know whether they had already changed before you asked them to complete the survey. You have acknowledge the cross sectional nature of your study in the limitations, although want to draw temporal conclusions from your findings.

The problematic sentence has now been omitted.
24. As presented, the multivariate analysis is unhelpful to your hypothesis. The variables included seem to match known associations between health behaviours and demographic trends. How do you think all of these variables fit together to make a meaningful contribution towards explaining the relationship between health behaviours, perceptions of these behaviours and worry amongst those who perceive their behaviours place them at risk?

One of the aims of this paper is to highlight the fact that there are different profiles associated with the different behaviours and we believe Table 5 highlights these differences.

25. There seems to be a very limited use of reference to the existing literature to help explain your findings and how they extend knowledge, or confirm or refute existing evidence.

Additions have been made to the Discussion section.

26. Page 13, the last paragraph introduces the concept of ‘Trial and Error’ for the first time (except in the list of variables included in the survey). It is a one question item that doesn’t seem to match the research hypothesis, but was found to be significant. This concept needs to be explained earlier if it is to be a focus of the discussion.

The concept of trial and error has been omitted to some extent although the concept of what it is and why it was included has been moved to the Methods section.

27. The main reference to other research was on page 14 in the third paragraph in relation to the concept of anger and a range of diseases. Where have you introduced the concept of anger in this paper? Why is it included in the model?

The additions to the Methods section on the reasoning of the inclusion of additional health-related variables overcome this problem.

Conclusions
28. The conclusion is a page and a half in length, 1/3 of the entire discussion? The conclusion rarely refers to the findings in the study and instead seems to summarise the literature around the area of interest. How does the content in paragraph 1 on page 16 directly relate to findings of your study and what is the conclusion? I disagree with the last statement of the conclusion and the studies ability to relate the findings to the family and the broader community.

The problematic paragraph (Paragraph 1 on page 16) has now been moved to the Introduction (as suggested in point 3 from this referee). The offending last sentence has been modified.

Abstract
29. The abstract was difficult to follow. The purpose of the paper is not clearly stated, the results chosen for inclusion seem arbitrary and very general and the conclusion does not relate to the findings and the final sentence does not provide any new direction for the field
Alterations have been made.

Minor Essential revisions
1. I suggest clarifying several aspects of the methods section for those unfamiliar with CATI surveys.

2. What proportion of Australian households has a landline and is listed in the electronic white pages?

   Additional details have been included in the limitations section of the Discussion regarding telephone coverage and mobile phone use.

3. What was the purpose of sending a letter?

   As detailed in the methods section, the letter was sent to inform the household about the survey. The use of approach letters has shown to improve response rates. This has now been stated in the Methods section.

4. Provide more details about the field agency and any accreditation they may hold for telephone surveys. How were interviewers trained to ensure standardised data collection? How were 10% of each interviewer’s work validated by the supervisor?

   In the interest of word count considerations and as this is not a focus of the paper, (and as Reviewer 1 requested the Methods section be reduced), no additional details on the agency were included. Notwithstanding, with the addition of the details on telephone coverage and mobile phone use in the limitations section of the Discussion, references to the quality of the data collection team are cited.

1Is the question posed by the authors well defined - The question needs clarification

   Alterations to the research question and hypothesis has been undertaken.

2. Are the methods appropriate and well described? The methods are adequately described, although need to be more focused towards the research question

   We believe the alterations we have made to the manuscript focus the methods section more towards the research question.

3. Are the data sound? The data is sound, although consideration for variables included in the results needs to be made.

   Additional clarification has been made.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes

   No response necessary.
5. Are the discussion and conclusions well balanced and adequately supported by the data? The discussion requires less results replication and greater focus on linking with the hypothesis and associated theoretical underpinnings.

*Alterations and additions to the Discussion have been made.*

6. Are limitations of the work clearly stated? - Yes, the limitations of the work are clearly stated.

*No response necessary.*

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished? Adequate

*No response necessary.*

8. Do the title and abstract accurately convey what has been found? - The title and abstract could be reviewed to better reflect the information presented in the paper

*Alterations have been made to the abstract.*

9. Is the writing acceptable? The paper should be passed by an editor.

*No response necessary.*