Reviewer's report

Title: Protocol for a pilot randomised controlled trial of an intervention to increase the use of traffic light food labelling in UK shoppers (the FLICC trial)

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Reviewer: Natalie Taylor

Reviewer's report:

This manuscript presents a protocol for a pilot randomised controlled trial of an intervention to increase the use of traffic light food labelling in UK shoppers. It is important to further our understanding of the impact of these kinds of interventions on shopping behaviours, especially for those at a higher risk of developing conditions such as obesity and cardiovascular disease. However, I have identified a number of weaknesses within this proposal, particularly in relation to the proposed methodology, which are detailed below. Based on these weaknesses, I would recommend that this manuscript is not suitable for publication.

GENERAL

- It is useful for reviewers when line numbers are presented as it makes it easier to comment on specific areas of the manuscript.

ABSTRACT

INTRODUCTION

- Page 3: You state that the intervention is based on current behaviour change literature but do not refer to this literature at this stage. There is no outline of what this behaviour change literature consists of – e.g., which theories are you referring to? What evidence is there for these theories? Why use the behaviour change literature to inform your approach to intervention design and not another approach? What interventions have been used in the past to reduce unhealthy food buying patterns? Have they been effective? If not, why, and why is this approach better?

- Page 4: The general structure of this section is difficult to follow.

- Page 4: The third point you make has no evidence to support it – how do you know the consumer is less aware of the nutritional content of foods than home cooked meals?

- Page 5: study hypotheses are not worded in traditional fashion

METHODS

- Page 6: Study design. There is no reference for the ‘parallel’ study design, nor any explanation about what this is. In the title of the paper it states this is a randomised study but this is not stated in the study design.

- Page 6: Setting. It is unclear what ‘facilitating token-based authentication’
means

- Page 6. Figure 2. There are two sets of ‘exclusion’ criteria in figure 2, but you refer to it for presenting both inclusion and exclusion criteria.

- Page 6: Recruitment and allocation. It is not clear how you will gain access to the loyalty card holders. Has this already been negotiated? What risks are associated with this recruitment strategy (in terms of getting enough numbers for your analysis) – there is also no sample size calculation. Will the participants be told about the true aim of the study or will they be blind too?

- Page 8: There is no description about how block randomisation will be used.

- Page 8: T0 is stated as one of the time points for data collection but this has not been mentioned when time-points for data collection were presented earlier. Is T0 a data collection time point or does this actually represent T1?

- Page 9-10: Consent. Although at another stage in the method you state ethical approval has been granted, the methods for consenting and subsequently proposing to continue to collect data from individuals who decline to participate or withdraw seems unethical to me.

- Page 10: Intervention. Although some reference to behaviour change literature is mentioned here, it is presented in a technical manner without any information to help the reader put the terminology into this particular context. What do you mean by ‘mechanism’, for example?

- Page 10: there are no references provided for the evidence demonstrating that people make inter- and intra-category food choices.

- Page 11: you say that people are ‘required to make a significant investment’ but it is not clear what this investment would be (or if it would be a number of things).

- Page 11: Again it is not clear what is meant by ‘mechanism’

- Page 11: There is no example provided of what an ‘interactive section’ would consist of, nor any information about what the ‘critical stages of the behaviour change process’ are. This lack of information makes it difficult to imagine what the intervention might look like and what aspects of the behaviour change process the intervention will target.

- Page 12: the first paragraph seems to belong in the procedure

- Page 12: I do not believe that recruitment, data and completeness belongs under the heading ‘outcome measures’

- Page 12: The information provided under the heading ‘effect sizes’ does not refer to how ‘effect size’ will be calculated. There is no description of what statistical tests(s) will be used to analyse the data.

- Page 15: the statistical analysis of the outcome data seems to be in an illogical place, as the process evaluation methods is presented between the outcome data section and the statistical analysis section. This is very confusing to follow

- Page 15: No rationale is provided for analysis on an ‘intention to treat’ basis

- Page 16: you state that one of the limitations is that loyalty cards can be used by multiple people so it is impossible to link purchases with specific users, and
that all purchasing may not be undertaken in the same supermarket. This seems like a large flaw in the study design (which may be partially overcome by the introduction of some consumer-based interviews/questionnaires to attempt to discover the extent to which they have been the sole user of the card and consistently shop in the same supermarket) which potentially renders a large and undefinable proportion of the data collected as invalid.

- Page 16: Although you state that it is important to develop interventions to use these tools, it is not clear how you intend to use the findings from this particular study to improve the next phase of the research (e.g., the content of the interventions tested as part of this pilot study).

- Page 17: There is no reference number provided for ethical approval.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

'I declare that I have no competing interests'