Reviewer’s report

Title: Do physical activity and dietary smartphone applications incorporate evidence-based behaviour change techniques?

Version: 2 Date: 5 May 2014

Reviewer: Mary Barker

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'Do physical activity and dietary smartphone applications incorporate evidence-based behaviour change techniques?'

Artur Direito, Leila Pfaeffli Dale, Emma Shields, Rosie Dobson, Robyn Whittaker and Ralph Maddison

BMC Public Health

General

This is a well-written paper answering a clear question. The paper describes an analysis of the use of behaviour change techniques in smart phone applications to support lifestyle changes. The methods are appropriated, and the data sound. The conclusions they draw are supported by the data and the limitations of the study acknowledged. This work adds to a very small literature on the evaluation of smart phone apps, and the authors point out that the most important questions about the effectiveness of smartphone apps can't be answered at the moment because we lack rigorously collected evaluation data. This said the analysis they do produce is interesting and is some evidence towards the likely effectiveness of smart phone apps in supporting behaviour change.

The paper is clear and well structured. I have very few comments.

Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

The only major compulsory revision I am requesting is that the authors justify the use of a version of the Behaviour Change Taxonomy which is now superceded. The most recent publication on the taxonomy reports 93 different BCTs not the 26 that the authors refer to. Please see the reference below. The authors need to explain why they used an out of date version.

81-95.

Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)

Background para 2 – the paper would benefit from a slightly more substantial description of what they mean by ‘inclusion of health behaviour theories’. Included in what way and how would this benefit? In the next sentence, they could also do with justifying how they think that in use of BCTs makes the mHealth interventions more interactive and dynamic.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Abstract, background – I don’t think the authors mean in the last sentence of this paragraph to talk about the reliability of the BCTs taxonomy. I think what they mean is that they are determining how reliably the checklist can be used to identify BCTs in smartphone apps.

Main body of the text, results, 3rd para – could the authors include some explanation of what an alpha of more than 0.7 indicates? At the moment, this sentence could be read to indicate that an alpha of 0.7 could indicate moderate reliability.

**Level of interest:** An article of importance in its field

**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