Reviewer's report

Title: Behaviour change strategies for reducing blood pressure-related disease burden: findings from a global implementation research programme

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Reviewer: Sally Wyke

Reviewer's report:

This paper presents an attempt to synthesise, or map, the 15 different approaches taken to improving blood pressure control funded by the Global Alliance for Chronic Disease. It uses an excellent, and appropriate, framework to do this, the Behaviour Change Wheel. It is really good that research groups like this are attempting to synthesise their approaches to intervention description. I applaud the group for their attempts.

Question/Aims: The aims are clearly described on page 14 of the manuscript, although they are not clearly defined in the abstract. I would question the paper’s first aim, to “use behaviour change theory to determine each team’s perception of the preparedness of various actors to change behaviour in their respective projects” (p14). First, the framework used to map the 15 approaches is not a theory but a framework for guiding intervention development; second, I wonder what the usefulness of this aim is? In fact I think the introduction would benefit from a clearer statement of why this mapping will be useful in the longer term; I agree that it will be useful but the paper needs to make this more explicit.

Methods: The Behaviour Change Wheel is an appropriate framework to use to map the interventions/projects but the paper would be clearer if authors would explain more clearly what the ‘behaviour system’ at the hub ‘involving three essential conditions’ meant. In the original 2011 paper (Michie, van Stralen and West, 2011) they are pretty well described and a brief recap here would help the naïve reader.

Teams were asked to undertake three tasks, in a survey instrument. The final description of each project is included in supplementary files. The problem is that I needed to read the supplementary files to really understand what was asked of the project staff and to assess the transferability or repeatability of the methods. That is, I did not ‘get’ what was done until I looked at the supplementary files. I wonder if authors could use a case study of one or two of the programmes to explain this process better. Table 2 could also be used to much better effect if authors described the interventions in relation to both the ‘intervention categories’ they were targeting and principal policy domains they were operating within or targeting.

The team clearly went to great efforts to support research teams in understanding their tasks in mapping their interventions with several iterations...
undertaken and detailed training.

However, in examining the supplementary files I also began to question the usefulness and validity of the second task described – to use the BC Wheel to identify the current capabilities, opportunities and motivations of the principal ‘actors’. The data on which these judgements were based was not at all clear to me. Although project staff were asked to justify their judgements I doubt whether those judgement would be reliable.

I found the mapping of the proposed interventions against ‘intervention categories’ much more believable and probably reliable; similarly, the mapping of the principal policy domains seemed appropriate.

Figures: I did not find Figure 2 helpful. It was practically impossible to interpret without reference to the data contained in the supplementary files, and was poorly labelled. I simply do not see the value of the information it contains and presents rather poorly.

Results: The description of results is not wholly consistent with the description of methods. For example, the results (page 16) says: “Two team (..) completed separate templates for each region”. But why they did this, how they did it, and why is not clear.

Similarly, the description of intervention projects is not consistent between figure 2 and pages 16-17 of the results section. Figure 1 separates out mHealth interventions whereas the results do not. In both table and text there is overuse of the term ‘multifaceted’. Complex interventions are, by their nature, multifaceted and it is the job of research teams to describe clearly those facets. It is really hard to understand, from the descriptions on the top of page 17, what the interventions are trying to achieve. For example, the results section (page 17) says: “Several projects are also using mobile health technologies as an adjunct to their overall intervention strategy”. But mHealth technologies are not interventions in themselves. It is what they do which is the intervention. For example they might be used to remind people to take their medicines, to prompt attendance at clinic and so on. Again, I wonder whether case studies would help?

Discussion and conclusions: On the whole the summary and implications of the research are clear. However, I do not see how the analysis presented can support the conclusion that “Our findings suggest that the GACD research programme will yield important insights into the role of contextual factors in determining the effectiveness of intervention strategies” (page 20) and later “The different approaches highlight the importance of detailed process evaluations”. Whilst I wholeheartedly agree with both of these statements they do not readily flow from the methods and results as presented in the paper.

Similarly, the discussion of realist evaluation and potential to expose generative mechanisms is good but I cannot understand how it flows from the actual content of the paper in relation to methods, data and analysis.
Finally, I have the same problem with the statement in the conclusion (page 21) that “By making explicit the types of context-mechanism-outcome configurations that are associated with success and failure, policy makers will be better information on what and how to scale up in non-research settings”. I wholeheartedly agree with this statement but do not see it substantiated in the body of this paper as it stands.

Title and abstract: the title is appropriate and on the whole, the abstract is clear. However the abstract should be improved by stating aims clearly and adding why the approach to map and synthesize is useful.

Major Compulsory Revisions
1. Provide a clearer statement of why this mapping will be useful in the longer term in the introduction;
2. Find a way of allowing the reader to understand the methods without references to the supplementary files. One suggestion is a box or case study.
3. Change table 2 to include, for each project, the ‘intervention categories’ they were targeting and principal policy domains they were operating within or targeting.
4. Consider the validity compared to usefulness of research teams judgements of current capabilities, opportunities and motivations of the principal ‘actors’. I did not understand the data on which these judgements were made, the ‘spider-web’ figures used to map these judgements, or the usefulness of the task. Should this be excluded? If not, how can it be better explained and justified?
5. Consider explaining more clearly how the methods and results lead to discussion of the importance of context, process evaluation and realist methods

Minor essential revisions
1. Be careful not to describe the Behaviour Change Wheel as a theory. A theory is an explanation of a particular phenomenon. The BC Wheel was not meant to be that – rather it is a framework to plan or describe interventions.
2. Explain more clearly what the essential conditions (COM) are.
3. Ensure consistency between methods and results and between results and tables.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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

Declaration of competing interests:
I do not have completing interests