Reviewer's report

Title: Using qualitative synthesis to explore heterogeneity of complex interventions: A truth table approach

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Reviewer: Claire Glenton

Reviewer's report:

This is an interesting paper, with a helpful and practical suggestion of how reviews of qualitative data and reviews of effectiveness can be integrated.

Minor Essential Revisions

I found this part confusing to read, mainly because I didn’t understand what types of reviews the two reviews that were selected were, thinking that they must be either Cochrane reviews or qualitative reviews. The main text is far clearer, and it was only when I read this part that I understood that the two reviews referred to were actually the Cochrane review and the qualitative review that were finally selected. This needs to be rewritten. In fact, perhaps it isn’t necessary to mention in the abstract that the authors searched for qualitative reviews that matched one of three Cochrane reviews. Perhaps the authors could simply state that they identified a qualitative review that matched a Cochrane review? In fact, if space is tight, I think their description of how they searched for matching qualitative and Cochrane reviews could be removed from the main text as well. I’m not sure that it adds much to the main story. (The last suggestion is a discretionary revision).

2. Abstract. Results section.
I didn’t understand the last sentence starting with “Including all trials identified…” Could the authors please see if they can re-write this somehow to make it clearer what they mean?

3. “Case study identified”, 1st paragraph.
The authors write the following: “Quality assessments were whether measures existed to assure validity of data collection.”. It was unclear to me whether the authors were referring to their own evaluation of the quality of the review or to the review authors’ evaluation of the individual studies. In the next paragraph, when describing the Cochrane review, the authors state that “The reviewers used eight criteria to assess the methodological quality of the trials.” This is much clearer. I suggest that a similar statement is used in the first paragraph.

4. “Case study identified”, 2nd paragraph
The authors write “In our analysis, as detailed later, we do not use the methodologically weaker trials to explore our primary aim (...)”. Instead we
included them to explore the extent to which recommendations derived from the qualitative evidence have been taken up in trials.” I don’t really understand what is meant by this last statement. It is also not clear to me why all the qualitative studies were included, regardless of quality, while this was not done for all of the RCTs. The authors so say here, “as detailed later”, so when they describe, later on in the paper, how trials that did not provide sufficient detail about the interventions were excluded, this made me wonder if this is what they were referring to when they talk about “methodologically weaker trials” even though this is perhaps not regarded as a “methodological” issue. However, even later on, on page 6, the authors state that “many of the trials in our case study were methodologically weak..” and “We first entered the extractions for the four trials that were judged by the Cochrane reviewers to be more robust methodologically...”. I would like to see the authors (a) re-write this information so that it is clearer what is meant, and (b) explain more precisely why RCTs that were considered good enough to be included in the trial were excluded from the truth table. Where was the cut-off point, and who decided on it?

5. Limitations
The authors conclude that the trials that did not improve adherence addressed fewer of the barriers and facilitators that patients felt were important than the trials that did improve adherence. But as the authors point out, “Incomplete reporting in trial reports pose a threat to the validity of this approach”, and it is possible that the interventions that were not effective did in fact include more components than were actually described. One possible solution to poor reporting would be to contact authors. This may have provided important confirmation about the components that interventions did and did not include. Was any attempt made to contact trial authors? If so, this needs to be mentioned under “Methods”. If not, this needs to be discussed under “Limitations”.

Discretionary Revisions

6. Background section.
I hadn’t heard the term “truth table” before, but after “googling” it, I see that the term is borrowed from maths/logic, and that it is on its way into the world of qualitative analysis. While I really like the idea behind the table, I really don’t like the term! It sounds terribly ambitious and too strong. If the authors continue to use it, I would like to see an explanation for why this term has been chosen.

7. Methods section.
Was there any particular reason why the authors chose diseases requiring long-term management as their topic? Perhaps this could be explained.

8. “Case study identified”, 1st paragraph.
This heading is a little vague.

9. “Case study identified”, 1st paragraph.
The authors write that “The reviewers then translated the themes into
recommendations...”. Later on, under “Data extraction, coding and quality assessment”, the authors write that “We first extracted the recommendations for promoting adherence from the qualitative review. These we listed as 21 recommendations (Box 1). One reviewer extracted these data and generated the list, which a second checked.” While the first reference suggests that the recommendations were simply copied from the review, the second reference suggests that something more was done, particularly because of the phrase, “generated the list”. Is this the case? If so, could the authors please describe what more was done?

10. “Case study identified”, 2nd paragraph
The authors state that “The reviewers did not combine trial data in a meta-analysis”. Could the authors explain why this was the case? The authors state later on that the trials measured adherence in various ways. Was this the main reason for a lack of meta-analysis, or were there other differences between the trials that we should be aware of?

11. Limitations
The qualitative review that was chosen included a set of recommendations. I would like to see some more discussion of whether/how a “truth table” could be used if a qualitative review does not have recommendations.

12. Implications. 2nd paragraph
The authors refer to thematic analysis as opposed to meta-ethnography. As the language of qualitative research synthesis is still not completely agreed upon, it might be helpful if references to clear definitions were provided here.

13. Conclusion.
The authors “call for more reviews of qualitative evidence on patients’ perspectives of managing chronic conditions”. This last sentence suddenly narrows down the article to focus on chronic conditions, rather than on the possibilities of integrating quantitative and qualitative methods. Perhaps it would be more relevant to call for more reviews of qualitative evidence in general, and in particular, qualitative reviews that complement existing reviews of trials?

14. Conclusion.
The authors write that “.patients are more likely to stick to interventions that contain more of their concerns”. This should be re-written, for instance, as “patients are more likely to stick to interventions that address more of their concerns.”

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 declare that I have no competing interests.