Author's response to reviews

Title: A multidisciplinary systematic review of the use of diagrams as a means of collecting data from research subjects: application, benefits and recommendations

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Adrian Aldcroft
Executive Editor
BMC series journals
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Dear Dr Aldcroft,

We have submitted a revised draft of our manuscript entitled ‘A multidisciplinary systematic review of the use of diagrams as a means of collecting data from research subjects: application, benefits and recommendations’ (note minor revision to title) through BMC’s online submission system. We have recently presented our results in a poster presentation at the Art of Public Health Conference and in an oral presentation at the Qualitative Health Research Conference and received a lot of interest in our work. We thank the reviewers for thoughtful feedback in assisting us to getting this important work to publication. The notes below set out how we have addressed reviewers (1) major compulsory, (2) minor essential and (3) discretionary comments.

1. MAJOR COMPULSORY REVISIONS

“I am not sure how this paper is different from Nesbit & Adesope in terms of type of diagrams…. It would be necessary to include some of these examples (structured and less structured diagrams) in the results section.”

We have added further clarification to our discussion section regarding the differences between the two systematic reviews. While we do discuss ‘less structured diagrams’ in the results section, we have made the difference between the two reviews more explicit by also adding in the labels of some less-structured diagrams i.e. ‘life cycle diagrams’ and ‘professional practice diagrams’.

2. MINOR ESSENTIAL REVISIONS

“It would be helpful to have explicit descriptions of inclusion criteria as operationalised by the research team”

As indicated by further comments from the reviewer, our word choice of the word “participant” may have suggested that articles with ‘participant researchers’ creating or editing diagrams would be included in our review. On the suggestion of the reviewer, we have clarified this point by explicitly stating that it is “research subjects” who must create or edit a diagram in order to eliminate the possible confusion. We have made this change throughout the paper for further clarification for the reader.

“The data are generally sound. However there should be more Tables of Study Characteristics both descriptive and analytic. The Summary Table One is insufficient as it is a secondary analysis of characteristics and does not link back to specific individual studies…”

We appreciate the reviewer’s suggestion on how to refine the Tables of Study Characteristics table. We acknowledge that generally systematic reviews provide data for each study on characteristics such as size, follow-up period, biases, outcomes and confidence intervals for each study. Given that our study focused on primarily qualitative studies and included articles that were instructional in nature we felt the method of including study specifics and citation in a table form for the 80 articles included was inappropriate. We have however included the citation of all 80 articles at the start of our Results section under General Characteristics, so that all the citations would be available to the reader. As well, we provide multiple citations to back up our
observations throughout the results section. The reviewer noted later that “there should be more attempts at characterising the studies as a body rather than simply highlighting individual characteristics.” We feel that this summary table helps to accomplish this. We also note that another reviewer explicitly stated that they liked the table. We feel that this table will be a useful summary and reference tool for researchers considering the use of diagrams in data collection.

“It would also be helpful in an article on diagrams to have included either actual examples (subject to copyright permission) or to have reconstructed simulated examples to illustrate their narrative”

We have included the citations of all 80 articles in our results section, which allows the reader the option to look more closely at the individual diagrams they are interested in. We have also provided the reader with in-depth examples and descriptions of the different types of diagrams and their main characteristics throughout the paper. As our systematic review extends beyond the highly structured concept and mind map diagrams that the Nesbit & Adesope systematic search focused on, it is more challenging to provide comprehensive visual examples to the reader. However, we would be willing to include some examples (subject to copyright) if that is compliant with BMC’s polices and advisable by the Editor.

“The title seems to have some elements of being misleading (i.e. ‘data’ and ‘techniques’)…It might be necessary to clarify what kind of diagramming this paper is limited to. May need to revisit title again”

One reviewer has suggested that ‘qualitative data’ would be clearer in the title. However, we found that some researchers used the collected diagrams for strictly quantitative purposes, some for strictly qualitative purposes and others a blend of the two. Therefore we left the title to reflect the broad data collection potential of diagrams and to appeal to both qualitative, quantitative and mix-methods researchers. The reviewer also suggests that we revise the word ‘techniques’ in reference to diagramming, as it sounds “too specific and skill-related”. We have changed the wording to ‘application’ throughout the paper, where appropriate. As suggested by the reviewer we have also refined our title to clarify that we are reviewing the use of diagrams where the data collected are coming from ‘research subjects’.

“The subheadings are too brief and do not naturally correspond to your research questions well…each paragraph is answering different questions so it might be better to add sub-sub headings to clearly show which question each paragraph is answering”

As suggested by the reviewer, we have used our research questions verbatim as subheadings in our results section. We feel this suggestion helps to connect our results section more closely to our research questions. While the suggestion of adding additional headings to clarify the sub questions answered in each paragraph would help direct the reader, we felt that our opening paragraphs to each section explicitly identified the sub questions and the additional sub-sub headings would clutter the paper.

“It would be very helpful if you provide some examples of the highly complex subject matter”

We have added two explicit examples of highly complex subject matters. Please note that this is in addition to seven other works that were cited in the original manuscript.

“The introduction is too long. Paragraphs 1-3 should be combined, shortened into a single paragraph”

We appreciate the suggestion of the reviewer and have shortened the paragraphs and have combined paragraphs one and three.
“It would be a better paper if there could be a bit more detail about the major approaches and especially scoring/summary data approaches.”

In our results section we outline the two most common scoring approaches by giving a summary of the method, the types of items scored and an example. We do the same for the summary of data approaches. Given the reviewers comments, we have made edits to make this more explicit to the reader.

“The first paragraph (of the discussion) should present a summary of the major finding in the paper and authors’ preferred interpretations. Comparisons with other published data should follow. The paragraph describing weaknesses occurs too early in the manuscript and should be moved closer to the end of the discussion.”

We have moved our discussion of the weakness of our study to the end of the discussion as suggested by the reviewer. However, we prefer to start the discussion with the comparison, followed by the summary of major findings. This is because the importance of our findings is set up through the contrast with a highly cited and influential systematic review with a narrower scope.

-“‘Used multiple diagrams’ sounds like multiple types of diagrams”
-“Please rewrite the sentence starting with ‘Thus the diagram was more of a summary tool...’”
-“Please rewrite the sentence starting with ‘If researchers require highly structured diagrams...’ It is too long and hard to follow.”
-“The discussion/conclusion section of abstract would be much more useful if the major recommendations were listed”
-“I would find it helpful to have an early statement to fix the topic in the reader’s mind and to distinguish their topic from other diagrams that they mention but which are not subsequently in their scope”
-“(Future research on underpinning theory) should be better explained in the discussion section”

The sections of text referred to above were revised as suggested by the reviewers.

3. DISCRETIONARY REVISIONS

We thank the reviewers for additional suggestions and discretionary revisions, which have been addressed through edits/revisions throughout the manuscript.

4. OTHER REVISIONS

Note that we have made a small change to the title of the article to reflect a framing issue raised by a reviewer. Rather than ‘techniques’ we use ‘application’ and we have added clarification by explicitly stating that the focus is on collecting data ‘from research subjects’.

We were also asked that the revised manuscript conform to the journal style as described in the following link (http://www.biomedcentral.com/info/ifora/medicine_journals). We have used the provided template and the Reference Manager output style. We trust that we have met these requirements. If further edits are required, please let us know.

We trust that we have satisfactorily addressed the issues raised by the three reviewers. Based on the reviewer’s comments, we believe the revisions have substantially improved the paper.
On behalf of my co-authors, please consider our revised manuscript for publication in *BMC Medical Research Methodology*. We look forward to your reply.

Yours sincerely,

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