Reviewer's report

**Title:** Outcome choice and definition in systematic reviews leads to few eligible studies included in meta-analyses: A case study

**Version:** 0  **Date:** 15 Sep 2019

**Reviewer:** Timothy Barker

**Reviewer's report:**

This case study is an overall well-reported and interesting investigation into the under-utilisation of useful meta-analyses due to differences in outcomes, includes in Cochrane Systematic Reviews. Whilst this piece of work answers an important question and would be of benefit to readers of BMC and the wider scientific community, there are a few minor, yet required revisions needed before this manuscript can be accepted for publication.

Background.

The background has too few citations and many more references are required to support the claims made by the authors. Citations are required for the sentences ending at lines 7, 32 and 45 of page 5 and line 30 of page 6.

I disagree with the statement made by the authors in the first sentence of the second paragraph on page 6 which reads "Although outcomes are fundamental to reviews, outcomes are not usually considered when determining a primary study's eligibility". Inclusion and exclusion criteria should be inherently linked to the PICO that informed the review questions. If a potentially eligible study reports only on outcomes that do not meet the reviews PICO, then it can reasonably be excluded from that review. Outcomes of a primary study do therefore impact on that primary studies eligibility. This sentence needs to be re-written.

Results

Line 32 of page 9, the authors write "forty-four reviews (35%)..." But then the numbering convention for the subsequent metrics changes to read "33/125..... 48/125..... etc" This should be made consistent.

The median number of studies reported on lines 51 and 52 should be followed by the IQR.

The information presented as figure 1 is inappropriate to be presented as a column graph. This data should be tabulated.

Line 38 of page 11 the authors write "For 21/51 reviews (41%), fewer than two studies reported measuring the review's main outcome (Table 3)". This sentence is not very clear.
Discussion

I would like to see a discussion point on the generic inverse variance method (GIVM). The authors have done a good job on discussing why some reviews have not performed meta-analysis with all included studies (where appropriate). It would seem prudent to also look at how many reviews could have included more studies in the meta-analysis if they had performed meta-analysis using the GIVM. It seems like a wasted opportunity to not discuss this aspect in the manuscript at all. A logical place for this discussion appear to be following the sentence that finishes on line 12 of page 15.

Line 28 of page 12. The final sentence of this paragraph is just not adding any new information to help clarify the preceding sentence, it is only rewording the sentence. Either clarify with more information, or remove.

Conclusions

Line 15 of page 17. What do the authors mean by "…and a failed obligation by researchers to research participants?" Can this be clarified or expanded?

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published
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