Reviewer's report

Title: Citation searching: a systematic review case study of multiple risk behaviour interventions

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Reviewer: Margaret Sampson

Reviewer's report:

Thank you for the opportunity to review this manuscript. This is a carefully conducted study that addresses an important gap in the systematic review methodology evidence. One of the many strengths of this paper is that the authors clearly label their study design, and the design of some research they cite, as case studies.

1. Is the question posed by the authors well defined?
   Yes

2. Are the methods appropriate and well described?
   Yes

3. Are the data sound?
   To the best of my knowledge

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   Yes

5. Are the discussion and conclusions well balanced and adequately supported by the data?
   Yes

6. Are limitations of the work clearly stated?
   I have made one comment on this, but largely, yes

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
   Yes

8. Do the title and abstract accurately convey what has been found?
   Yes

9. Is the writing acceptable?
   Yes.
I have a few points for the authors to consider:

Major:

1. Page 8, last paragraph. There is another possible contribution here. Citation provides context and infers relevance. This can raise the “index of suspicion” that an item might be relevant, even if the title and abstract are uninformative. Thus, it is possible that an item might be recognized as relevant when it appears as a citing or cited reference, although it had been screened out by reviewers in the initial screening of database results. In this light, I would suggest screening the 35 that had been excluded because they had already been identified from database searching – unless they found relevant during that screening (page 15). There is a chance that the big payoff comes from screening citing references blind to the previous decision – there are hints that this is the main contribution of checking cited reference.

All other comments are minor discretionary.

2. Page 6 – I think it is important to evaluate time and cost. You do discuss time, below I suggest addressing cost in the discussion, and add time and cost as a factor here.

3. Page 9 and 10 – The authors might be able to tighten the introduction by trimming some of the discussion of h-index and, what I assume to be, the oblique reference to Gehanno and the other papers that the his Google Scholar claims have triggered (first paragraph p. 10).

4. Page 13 – I would remove the counts for each database – this is a result and is repeated in the result section. Please consider some of the results of interim steps could be moved to the results section as well.

5. Page 20 – Can you be more specific as to when this single record entered Embase and SCI? Possibly the database publishers could help, working from the record’s accession numbers. This isn’t essential, but January – November is a fairly long span.

As an aside, I looked at abstract for that 41st study as I was interested in the N. It is described as a cluster RCT but seems to have been analyzed as though it were a standard RCT – I confess that haven’t read the whole trial (no need to respond to this observation).

6. Discussion, p. 21. Some issues that are not particular to Google Scholar are intermingled with GS limitations. I would suggest separating a) limitations inherent in the method; citation tracking is labour intensive and the search becomes a 2 stage process, ( maybe also note if these drawbacks are shared with other methods such as checking cited references and contacting authors) from b) limitations specific to GS (lack of bulk export, sketchy record quality). A strength of Google Scholar is that it is available without cost – WOS and Scopus are both quite pricey.
7. Coverage vs. retrieval – an issue brought to the fore by the Gehanno work! You address this only for SCI index – all 40 were in the database, only 12 were identified through searching. I would like to see this for all databases. As well, this seems to be a new result, introduced in the discussion – please report this in the results section (apologies if I have simply missed it).

8. Page 22 – recall achieved from combining one db + citation tracking - again, this seems to be a new result, introduced in the discussion.

9. Any insights as to why OVIDSP is so sparse? The help features says “OvidSP’s Find Citing Articles feature lets you connect quickly to a display of articles in Journals@Ovid that cite the article of a record from your OvidSP session.”
- Does this mean that it is only reporting citations in Wolters Kluwer journals? If that is the case, you should likely mention that.

10. Limitations – You have only one novel record identified from this method. You do acknowledge that this is a case study, and that results may not generalize, but think about whether this is likely to be a chance finding? The initial search was done in January, this article was published in July. In a year without a US Gov’t services shutdown and an end-of-year reprocessing shutdown of unprecedented length, might this have been found more easily in a routine update of the MEDLINE search toward the end of the review?

11. My overall impression of these results is that, given competent database searching and an update of the search toward the end of the review, citation tracking does not appear to contribute much. I find the value of finding a 41st study earlier than you would have otherwise to be quite small. I would be pleased to see a bolder conclusion – what should systematic reviewers do?

**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