Reviewer's report

Title: Global collaborative networks on meta-analyses of randomised trials published in high impact factor medical journals: a social network analysis

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Reviewer: Julie Glanville

Reviewer's report:

This is an interesting analysis of collaboration volume and grouping in the production of meta-analyses published in seven high impact journals. However, the authors need to provide a more detailed rationale for why we need to know this information and of how it can be used to inform practice and policy. It also needs to be placed within the context of what is already known about scientists collaboration habits. The paper would also benefit from some clarifications listed below.

Major compulsory revisions

1. P3. Introduction. The authors say “This study aims to describe and characterize global collaborative patterns with regard to the conduct of meta-analyses of randomised trials published over the past three decades in high impact factor medical journals, applying techniques from social network analysis.” The authors should describe why this knowledge (and the research reported) might be helpful.

2. Methods. The authors should not describe their search here and in the abstract as ‘comprehensive’. A comprehensive (sensitive) search would not have searched for randomized controlled trials as a concept: a comprehensive search approach would have searched for meta-analysis as a concept and the journal titles. The authors searches for the randomised controlled trial concept lacked the search term ‘randomised’ and ‘randomized controlled trial’ is searched only in the singular. The attached example search shows how many records would be missed in a general search of PubMed by not using these additional options. In addition the authors have added limits to their search which again reduces the comprehensiveness of their search. Limiting to humans in the search (“humans”[MeSH Terms]) misses trials which do not have the Humans tag or have not yet been indexed. I suggest that the adjective ‘comprehensive’ does not apply to this search.

3. Discussion. The authors state “The maps of scientific partnership display authors who are “leaders”, who may contribute collaboration to be more frequent and intense between authors and institutions from different countries. It also identifies highly cohesive cluster networks and provides considerable information on the structure that can be put to various purposes (to design strategies for future scientific collaboration, to promote a global coordinated agenda for research to a variety of high priority clinical topics, to share reliable and
innovative methodologies, to develop world class educational and training opportunities, etc."
I am sure all this is possible but I don’t see that it necessarily follows and I would like to see more discussion about how knowing about the collaboration patterns found by this research, can really help governments, research funders or international agencies to achieve these developments.

4. Discussion. The authors state: “Some clinical topics, such as the determination of the treatment effects of pharmacological interventions in cardiology and oncology, show a clear upward trend of citations and may have had a clear impact in changing clinical practice.” This is again, very interesting, but doesn’t seem to really fit in with the exploration of collaboration trends. We could probably find some single country meta-analyses which are also well cited. The authors should explain in more detail how this finding relates to collaboration.

5. Discussion. The authors discuss avoiding unknown duplication of effort and this is probably very desirable, but the authors need to link this discussion thread in to the theme of collaboration more closely, otherwise this discussion just seems tangential to the results.

6. Discussion. There must be a vast literature on the motivations and trends in scientific collaboration – the authors do not link their research into that evidence base.

7. Conclusions and implications. The authors state: “This valuable information may be used to strengthen scientific capacity for global collaboration and help to build a cooperative scientific agenda for future research of excellence in the field of clinical evidence synthesis.” I regret that I don’t see the link between knowing what collaborations exist and building cooperation – the authors need to make a clearer case for this. This research shows there are many collaborations but does not show how this can be leveraged.

Minor Essential Revisions
1. P4 Methods. The authors say “We selected eligible reports…” Please discuss the eligibility criteria first.

2. The authors say “…one of the seven high impact…”. Are these the top seven journals or seven of the top high impact journals? If the former, please state this and if the latter, how were they selected?

3. The authors state “For the purposes of this study, we selected all articles published, in English, and indexed in PubMed up to December 2012.” The start date of the eligible records should be reported. The date of the search should be provided.

4. P4 Data extraction. The authors report “We also used the SCI-E to determine the extent to which each study has been cited in other publications.” What data was collected?

5. Use a standard tense throughout.

6. The authors describe their approaches to standardising institution names: “In the case of institutions, we have unified the different variants to match the namerecorded in public directories of institutions. Similarly, given that institutional
names in many records included two or more institutions (e.g. university hospitals, research centres and academia), we have proceeded to distinguish between these signatures by recording as many signatures as individual macroinstitutions could be identified for each bibliographic record." This is difficult to follow and would be aided by some examples.

7. Data analysis. The authors state “We use the terms co-authorship to refer to joint authorship of a scientific paper by at least two individuals, and institutional collaboration to refer to joint authorship by different institutions.” Is co-authorship within the same institution? Could a meta-analysis be categorised as both co-authorship and institutional collaboration? Please clarify.

8. Data analysis. The authors should provide a table with definitions of each of their measurements: number of papers, signatures, collaborations, the index of signatures per paper or collaboration index (which is the mean number of signatures per paper) and the index of authors per paper (mean number of authors per paper considering only the different authors).

9. Data analysis. The authors state; “…we further established a threshold of 2 or more Collaborations…” Was this pre-planned in the project protocol or was it a post hoc decision at that point in the project? The same question applies to the other threshold described in the same paragraph.

10. It would be helpful to know the specific features of PAJEK software – is it specifically designed for this type of analysis and why was it selected?

11. Results: General characteristics of the sample. “Journals received 130644 citations, of which 37930 corresponded to BMJ (29%), 34 911 to The Lancet (27%) and 25 273 to JAMA (19%).” I am not clear what this means – please explain.

12. Table 1. For the country of publication of first author, is this really the first author who was counted, or the corresponding author?

13. On p6 Clarck may be misspelled and ‘affiliated’ is misspelled.

14. Discussion. The authors state: “Remarkably, the scientific community captured by the networks is centred on a nucleus of scientists and researchers from academia, medical centers and health research institutes from Western high-income countries (North America, Western Europe and Australia/Oceania).” I am not sure this is ‘remarkable’, perhaps ‘as might be expected’?

15. Discussion. ‘benefitted’ is misspelled.

16. Discussion. The authors state: “…an exhaustive, comprehensive analysis of the literature…” This statement should be modified since this research was in seven journals and the search strategy was not comprehensive.

17. Discussion. The authors claim their research is the first analysis but do not report a literature search to support this. Please add that information to the paper.

18. p.9 The Cochrane library – should be ‘Cochrane Library’.

Discretionary Revisions
1. Discussion. I think the first para might be better in the introduction as it sets the scene.

2. Discussion. The authors might like to speculate about the role of the internet in increased collaboration especially in desk research such as meta-analysis.

3. Discussion. Given that the UK is in the EU do the authors see any increase in UK collaboration with other EU countries?

**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