Author's response to reviews

Title: PICO, PICOS and SPIDER: A comparison study of specificity and sensitivity in three search tools for qualitative literature

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Author's response to reviews: see over
Response to reviewers’ comments

We would like to offer our thanks to all reviewers for their comments, which have substantially improved this manuscript.

Reviewer 1

Response to overall comments

We are very grateful to the reviewer for her thorough review of the manuscript and for sharing her expertise.

Major compulsory revisions

1. This point has been clarified as suggested and now reads:

“When devising a search strategy, a search tool is used as an organising framework to list terms by the main concepts in the search question, especially in teams where it is not possible to have an experienced information specialist as a member of the review team. The PICO tool focuses on the Population, Intervention, Comparison and Outcomes of a (usually quantitative) article. It is commonly used to identify components of clinical evidence for systematic reviews in evidence based medicine and is endorsed by the Cochrane Collaboration”

2. The lead author apologises for this accidental oversight, no omission was intended. Olivia Walsby (Specialist Librarian) is now acknowledged at the end of this paper. Rosalind McNally (Information Specialist) has approved the final copy of this paper and is now listed as a co-author. Whilst the contribution of Olivia Walsby is greatly acknowledged, her contribution did not meet the criteria of the ICMJE which is endorsed by BMC HSR and so she was not considered suitable for authorship. The final point has been added to page 4, line 5:

“When devising a search strategy, a search tool is used as an organising framework to list terms by the main concepts in the search question, especially in teams where it is not possible to have an experienced information specialist as a member of the review team.”

3. Our terms did not match Cooke et al. specifically as they investigated qualitative and mixed-method studies whilst we only investigated work using qualitative methods of data collection and analysis (as outlined by the Cochrane Collaboration). The reason for this was that the comparison of search tools presented in this
manuscript was utilised as part of a systematic narrative review, which focussed explicitly on qualitative research. Consequently, the terms ‘survey’ and ‘questionnaire’ were not included as it was believed that these would not identify research that was qualitative by both design and analysis. For example, a questionnaire which collected data using a quantitative method, (even if analysed qualitatively) would not have been eligible for our review, neither would a survey with a minority of open ended questions. Whilst this differs from the Cooke et al. study, this is because our study focussed on a different type of research publication (solely qualitative studies), showing the relevance of the spider tool in a real world example.

In section D of our table 2, the MeSH heading ‘focus groups’ was used in CINAHL plus, the overview heading ‘exp interviews as Topic/’ (incorporating the subheading focus groups) was used in Medline and the keyword ‘focus groups$.tw’ was used in EMBASE.

4. All table numbers have now been correctly ordered.

5. All three databases were checked for all 14 articles as suggested by Reviewer 1. This revealed that ten of the potential 14 articles were available in the CINAHL Plus database, but not identified using the chosen search strategy. Major subject search terms that would have identified these studies were ‘Multiple Sclerosis- psychosocial factors’ (n = 6), ‘patient attitudes’ (n = 5), ‘Multiple Sclerosis- Diagnosis’ (n = 3), ‘Multiple Sclerosis- drug therapy (n = 3), ‘attitude to illness’ (n = 2). The search was therefore rerun from database inception until October 2013 using these headings as we felt it was more beneficial to the readership of BMC HSR to have an accurate portrayal of the available literature and the capabilities of the discussed search tools. This has resulted in a major rewrite which we hope is still in accordance with the reviewers’ suggestions.

<table>
<thead>
<tr>
<th>Extended search terms for CINAHL</th>
</tr>
</thead>
<tbody>
<tr>
<td>[MH Multiple sclerosis OR TX multiple sclerosis ] AND</td>
</tr>
<tr>
<td>[MH patients OR TX service user* OR TX service-user*]</td>
</tr>
<tr>
<td>MH ( health services needs and demands ) OR TX health care OR TX health services OR TX care OR MH patient care OR MH health personnel OR MH health services administration OR MH health services OR MH health facilities OR MH mental health services OR MH therapeutics OR TX specialist care OR MM &quot;Multiple Sclerosis Psychosocial Factors&quot; OR MM “Multiple sclerosis diagnosis” OR</td>
</tr>
<tr>
<td>MM “Multiple sclerosis drug therapy”</td>
</tr>
<tr>
<td>--------------------------------------</td>
</tr>
<tr>
<td>TX qualitative OR MH qualitative studies OR TX qualitative interview OR MH focus groups OR MH content analysis OR MH constant comparative method OR MH thematic analysis OR MH grounded theory OR MH ethnographic research OR MH phenomenological research OR MH semantic analysis OR TX interview*</td>
</tr>
<tr>
<td>TX perception* OR MH patient satisfaction OR TX satisf* OR TX value* OR TX perceive* OR TX perspective* OR TX view* OR TX experience* OR MH (health services needs and demand) OR TX opinion* OR MH consumer satisfaction OR belie* OR MM “Patient Attitudes” OR MM “Attitude to illness”</td>
</tr>
<tr>
<td>AB qualitative OR MH qualitative studies</td>
</tr>
</tbody>
</table>

6. This heading has been moved to the appropriate place.

7. This has been rephrased as suggested to:

“The PICOS tool was more specific than the PICO tool, but did not identify any additional relevant hits to the SPIDER tool, suggesting it is of equal sensitivity.”

8. This has been removed as suggested.

9. This has been rephrased as suggested to:

“The PICOS tool resulted in an overall more sensitive search, but still demonstrated poor specificity on this topic. Further investigations of the specificity and sensitivity of SPIDER and PICOS on varied topics will be of benefit to research teams with limited time and resources or articles necessary to impact on policy or change current practice. However, where comprehensiveness is a key factor we suggest that the PICO tool should be used preferentially.”

**Minor essential revisions**

1. These have been consistently referred to as “tools”.

2. These have been clarified as suggested to:

“Due to its target literature base several of these search terms such as “control group” and “intervention” are not relevant to qualitative research which traditionally does not utilise control groups or interventions, and therefore may not locate
qualitative research. However, these terms may become more relevant in the future as more trials and interventions incorporate qualitative research”.

3. The SPIDER acronym has been clarified as suggested to:

“Cooke et al. (2012) also addressed this issue of relevance by developing a new search model entitled “SPIDER” (sample, phenomenon of interest, design, evaluation, research type), designed specifically to identify relevant qualitative and mixed-method studies”.

4. Table 1 has been moved for clarity.

5. This has been clarified as suggested to:

“No date restriction was imposed on searches as this was an original review.”

6. This has been altered as suggested.

7. This study did not seek to complete a full systematic review, as this would have required more extensive methods of identification of papers (e.g. contacting authors, citation checking etc.). This study simply aimed to identify the number of relevant full papers per tool and per database. We were not seeking to identify grey literature or literature that had not been clearly peer-reviewed.

8. This has been reworded as suggested to:

“Search terms used a mixture of medical subject headings and keywords”.

9. This has been clarified as suggested to:

“The time spent screening hits for relevant articles equated to weeks for the PICO hits and hours for the PICOS and SPIDER hits”.

10. This sentence has been moved as suggested.

11. These sentences have been reworded as suggested.

12. The grammar has been corrected as suggested.

13. This phrase has been corrected as suggested.

14. This sentence has been removed.

15. This sentence has been reworded as suggested to:
“There were differences in the number of relevant papers identified both on each database and by different search tools.”

16. This wording has been clarified as suggested to:

“As previously described in Cooke et al. (2012), the SPIDER model produced a greatly reduced number of initial hits to sift through, however in this study it missed five studies that were identified through the PICO method.”

17. This reference has been reformatted as suggested.

18. This section has been rephrased to:

“The issue of time was also related to the number of relevant articles identified per database. Whilst EMBASE generated nearly twice as many hits as MEDLINE, only one additional paper was found. The PICO tool identified all articles, suggesting that where time is not a factor, it might be of more benefit to use this tool, as SPIDER demonstrated lower sensitivity, did not identify any new articles and identified fewer relevant articles than PICO.”

19. This has been clarified as:

“In all PICO searches for MEDLINE and EMBASE the word “qualitative” combined with the phrase “multiple sclerosis” identified many quantitative studies reporting brain scan assessments that were wholly unrelated to the search aim.”

20. References have been corrected.

21. Misspellings have been corrected as suggested.

Discretionary reviews

1. This has been amended to “the SPIDER tool was tested” as suggested.

2. This phrase has been removed as suggested.

3. This issue has been resolved.

4. This sentence has been rewritten as suggested.
5. This sentence has been removed.

6. This sentence has been moved as suggested.

7. Removed as suggested.
Reviewer 2

Minor essential revisions

1. We would be grateful to include the full tables either in the main text or as 
   supplementary material to increase clarity and transparency; however we leave this 
   to the discretion of the reviewers and the editorial team.

2. Table numbers have been corrected.

3. We hope to have addressed points regarding clarity and inconsistency.

4. This typographical error has been addressed.

Major compulsory revisions

1. We would be grateful for editorial clarification on this point as it has not been 
   identified by other reviewers. The statistics presented are a direct replication of 
   those presented in Cooke et al.’s original paper.
Reviewer 3

We have edited this paper for concision.