

Peer Review

Review of: "Development and Functionality of the ABC Tool (Automated Boolean Composer) to Simplify and Standardize Search Strategy Construction in Bibliographic Databases"

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Thanks for the chance to review. The study describes how the Epistemonikos Evidence Taxonomy can be used to populate 9,500 pre-developed Boolean searches, and how any users could take advantage of these searches.

The study claims "the ABC Tool has the potential to substantially enhance the efficiency, reproducibility, and methodological quality of evidence synthesis workflows."

The paper is very well reported, and it is easy to follow.

Major comments:

I fully agree with the authors that the tool is very valuable for creating search strategies. It really allows non-expert librarians to create searches that could be more sensible and relevant, and way better than they would do on their own. The point here is the paper demonstrates that they have a role in evidence synthesis. Whether I would agree the paper supports that it could have a role, I don't see the paper proving these strategies are better than the current gold standard, which is to get an information specialist to write the search strategy for you.

The paper does not touch on many elements that would be critical for good evidence synthesis, such as how to translate the search into different databases.

A much more nuanced conclusion for me would be:

“the ABC Tool substantially enhances the efficiency, reproducibility, and methodological quality of search strategies created by general users. It has the potential to support evidence synthesis search strategy generation: its role in this aspect could be tested in future research.”

This paper (<https://pmc.ncbi.nlm.nih.gov/articles/PMC5886502/>) describing how long it takes for different levels of experience of information specialists to create and document a search strategy shows that the search strategy itself is a very small step in the process of planning and implementing the search. In order to substantiate the claims made in the paper, the authors should have needed to compare users with the ABC tool with users without, adjusting for levels of experience, when designing a search for an evidence synthesis. Otherwise, we can only claim the tool allows a non-expert to create a highly sophisticated search in a few clicks.

Whether the tool is really simpler to use for non-experts, we will need to wait for the results of the user testing.

Minor comments:

“Some estimates suggest it can take upwards of 100 hours just to finalize a search strategy for a systematic review.” This is a very extreme case. Others (such as <https://pmc.ncbi.nlm.nih.gov/articles/PMC5886502/>) report experts take between 7 to 10 hours to design a strategy. Still makes the case that the amount of time saved is substantial.

From the methodological perspective, it is not clear how the gold standard used (systematic reviews on the topic) deals with the hierarchical nature of the taxonomy. Are the “parent” elements of the tree validated against the full tree?

The article claims the searches propagate from the parent terms to the child terms: I performed a couple of searches (with cardiovascular disease and Jak inhibitors) where this does not seem to be the case; the Boolean search does not seem to expand the child elements.

In the discussion, the authors hypothesize the tool might avoid mistakes from authors due to its automation. In order to substantiate this statement, the user testing that is currently in progress would need to confirm or deny. Whether some problems could be solved, some new problems could emerge from the use of automation, like the improper use of Boolean terms.

Declarations

Potential competing interests: No potential competing interests to declare.