SWAR 13: Performing an adequate search strategy

Objective of this SWAR
To assess the accuracy of a search strategy for a research question when no librarian is available

Study area: Study Identification
Sample type: Practitioners
Estimated funding level needed: Unfunded

Background
Current guidelines for systematic reviews and meta-analyses provide overall guidance for building a search strategy if the review team does not contain a specialized librarian.[1] However, there is a lack of specialized training on how to construct search strategies that are of sufficient quality to ensure both adequate sensitivity and precision, which are fundamental to high quality systematics reviews. An inadequate search could lead to the failure to identify important reports or other information relevant for the review. Furthermore, a search with high sensitivity but low precision could lead to wasted effort for the research team when scoping and selecting potentially eligible articles from amongst a large number of retrieved titles and abstracts.[2,3] Therefore, this SWAR is intended to fill important gaps relating to a lack of evidence on the comparison between a search strategy built by a specialized librarian versus one built by a trained researcher or a clinician,[4,5] the impact of an inadequate search strategy on a systematic review and the differences between an original search strategy and one developed by an experienced evidence-based healthcare researcher. This SWAR provides a framework for presenting a descriptive analysis of the search strategies for published systematic reviews and a comparison of the search with a similar one performed by an experienced evidence-based healthcare researcher.

Interventions and comparators
Intervention 1: Search strategy used in a systematic review.
Intervention 2: Search strategy designed by an experienced evidence-based healthcare researcher.

Index Type: Searching

Method for allocating to intervention or comparator

Outcome measures
Primary: The differences between the sources searched and, for each source, the total number of search results, and the sensitivity and precision of the searches for articles that are eligible for the review for (1) the search strategy used in the review and (2) a search strategy designed by an experienced researcher in systematic reviews using the review's PICO question.
Secondary:

Analysis plans
The collected data of this SWAR could be presented along with the search strategy in the supplemental material for a review alongside the comparison with the search strategy performed by the experienced evidence-based healthcare researcher. The difference between both search strategies (the one presented in the systematic review versus the one conducted by the experienced evidence-based healthcare researcher, will be log-transformed. The search conducted by the experienced evidence-based healthcare researcher will be called the Expected value, and the one published in the systematic review will be the Observed value. The difference between both log-values (observed minus expected) will be calculated. A difference between those of more than 0.2 multiples of the median will be considered significant. This will allow researchers and reviewers to compare the sensitivity and precision of the search strategy made by the authors of the article and the results obtained by the experienced evidence-based healthcare researcher. The SWAR could also be published in a prospective database such as the OSF Open Registries Network.

One way to implement this SWAR could be to consider those reviews with more than 0.2 multiples of the median, as "high-risk of bias" (along with those that did not report the full detailed search

strategy) and those with less or equal to 0.2 as low-risk of bias. This will help users of reviews to identify those considered to have the minimum standards based on the PRISMA guidelines.[6]

Possible problems in implementing this SWAR

If a review does not report its full search strategy, it will not be possible to identify key differences between the original search and the one designed by someone else. In such cases, the search strategy will need to be obtained from the original authors. Another difficulty could be a lack of information about the limits and filters of the search, because some search strategies have language or time limits that are not specified on the search itself but were performed when it was run. Again, the only way to overcome this difficulty would be to ask the original authors for the necessary details.

References

1. Cumpston M, Li T, Page MJ, et al. Updated guidance for trusted systematic reviews: a new edition of the Cochrane Handbook for Systematic Reviews of Interventions. Cochrane Database of Systematic Reviews 2019;10:ED000142.
2. Harris MR. The librarian's roles in the systematic review process: a case study. Journal of the Medical Library Association 2005;93:81-7.
3. Spencer AJ, Eldredge JD. Roles for librarians in systematic reviews: a scoping review. Journal of the Medical Library Association 2018;106:46-56.
4. Booth A. How much searching is enough? Comprehensive versus optimal retrieval for technology assessments. International Journal of Technology Assessment in Health Care 2010;26:431-5.
5. Relevo R. Effective Search Strategies for Systematic Reviews of Medical Tests. In: Chang SM, Matchar DB, Smetana GW, Umscheid CA, editors. Methods Guide for Medical Test Reviews. Rockville (MD), 2012.
6. Liberati A, Altman DG, Tetzlaff J, et al. The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. Journal of Clinical Epidemiology 2009;62:e1-34.

Publications or presentations of this SWAR design

Examples of the implementation of this SWAR

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Revisions made by: Raigam Jafet Martinez-Portilla
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