



Transparency of reporting search strategies in systematic reviews

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Keywords Systematic review · Search strategy · Transparency · Reporting

Received: 5 July 2022 / Revised: 18 July 2022 / Accepted: 21 July 2022 / Published online: 22 August 2022
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Systematic reviews are considered the highest level of evidence, as they provide precise information that is essential for decision making at different levels. Searching databases for the literature is one of the fundamental components of a systematic review [1]. A poor search strategy may lead to low-quality evidence. The recently published systematic review by Zhang et al. [2] highlighted the association between altitude and the prevalence of hypertension among permanent highlanders. The authors demonstrated methodological robustness in all aspects of the systematic review except for the search strategy. The authors provided two search strategies as supplementary material. Search 1 yielded 1035 citations from MEDLINE (through PubMed) after applying the search date restrictions mentioned by the authors (from inception to April 30, 2021). Search 2 yielded 1204 citations in MEDLINE (through PubMed) after applying the same filter for the date. Interestingly, the authors mentioned in the Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA) flow diagram that the total number of retrieved articles is 1273, and 694 of them were retrieved from PubMed. This mismatch certainly calls into question the transparency of the review. It seems that the authors failed to report the search strategy transparently to make it replicable. Another issue is that the authors did not provide a comprehensive search strategy for all the databases that they searched (MEDLINE/PubMed, Embase, and Web of Science).

The PRISMA statement [3] provides the standard norms for reporting a systematic review and meta-analysis. The PRISMA 2020 [4] statement is the latest updated guideline that specifically recommends that authors should provide the full search strategies for all databases, registries, and websites searched. Systematic reviews should be reported in a way so that they can be replicated and updated to add to the evidence base. For transparent reporting, the presentation of the comprehensive search strategy with all filters applied is essential. The Peer Review of Electronic Search Strategies (PRESS) guidelines have provided a comprehensive direction for developing search strategies for systematic reviews and health technology assessment reports [1]. The checklist for the PRESS guidelines included the translation of the research question into population, intervention, comparison, and outcome elements; the use of Boolean and proximity operators; the use of database-specific subject headings, text word or free text searching, considerations of spelling, syntax, and line numbers; and limitations and filters. The PRESS guidelines involve the peer review process of the search strategy. However, even if the review is not peer-reviewed, developing search strategies in accordance with the PRESS guidelines is very useful.

The use of artificial intelligence (AI) enhances the robustness of the systematic review process and overcomes resource constraints [5]. The systematic review accelerator program provides support in developing and refining search strategies with the help of AI. The “search refiner” is a tool that supports understanding the formulation of search strategy, visualizing, and use of Boolean queries. The tool also helps to refine the search queries in more effective ways [6]. Another interesting tool of the systematic review accelerator is the Polyglot Search Translator [7], which supports the translation of the search strings across different databases. The use of AI can thus help to develop search strategies efficiently and effectively. This will also support the authors in reporting the search strategies transparently and increase the reliability of the process undertaken. Systematic reviews should be

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conducted following standard methods to avoid bias in the review process. Standard systematic reviews may provide strong evidence for clinicians, policymakers, researchers, and end users. Systematic reviews conducted without following standard methods and reporting guidelines may lead to waste of research and are simply considered “garbage in and garbage out”. Journals should be strict in requiring that authors perform systematic reviews in accordance with established robust methods.

Acknowledgements The author acknowledges the different systematic review method groups.

Compliance with ethical standards

Conflict of interest The author declares no competing interests.

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