SWAR 65: Comparison of a traditional manual screening process versus an AI-assisted screening approach within a scoping review

Objective of this SWAR
To compare a traditional manual screening process versus an AI-assisted screening approach within a scoping review on post-Latarjet rehabilitation

Study area: Study Identification, Editorial Processes, Methodological innovation in evidence synthesis
Sample type: Review Authors, Participants, Large Language Models (LLMs) as screening tools
Estimated funding level needed: Unfunded

Background
Scoping reviews [1,2] are increasingly used in rehabilitation sciences to map heterogeneous evidence. However, the screening phase is time-consuming and represents a major barrier for clinicians undertaking research. Recent advances in large language models suggest potential utility for assisted screening, but empirical methodological evaluations remain scarce. This Study Within a Review (SWAR) [3] is embedded within a scoping review on mechanical load management following Latarjet surgery, to evaluate whether AI-assisted screening can offer a pragmatic alternative compatible with research constraints faced by clinicians.

Interventions and Comparators
Intervention 1: Manual screening of titles, abstracts and full text by a single trained reviewer following predefined inclusion and exclusion criteria.
Intervention 2: AI-assisted screening using a large language model to pre-classify records according to relevance, followed by human verification of included and excluded records to ensure consistency with eligibility criteria.

Index Type: Title

Method for Allocating to Intervention or Comparator:
Before and After Study

Outcome Measures
Primary: Sensitivity (proportion of studies included in the reference standard that are correctly identified by the AI-assisted screening); False exclusion rate (proportion of reference standard studies incorrectly excluded by the AI-assisted approach); Screening time (time required to complete title and abstract screening for each approach).

Secondary: Over-inclusion rate (proportion of records included by the AI-assisted screening but excluded in the reference standard); Agreement rate between screening approaches; Feasibility (assessed qualitatively based on ease of use and integration into the review workflow).

Analysis Plans
Analyses will be primarily descriptive. Quantitative outcomes will be reported as proportions and percentages. Screening time will be compared descriptively between approaches. No formal hypothesis testing is planned, given the exploratory nature of this SWAR.

Possible Problems in Implementing This SWAR
Potential sources of bias include reviewer subjectivity, limited generalizability due to the single review context, and rapid evolution of AI-assisted screening tools. The use of a predefined reference standard and transparent reporting aims to mitigate these limitations.

References
1. Peters MDJ, Godfrey C, McInerney P, Munn Z, Tricco AC, Khalil H. Chapter 11: Scoping Reviews. In: Joanna Briggs Institute Reviewer's Manual.

2. Tricco AC, Lillie E, Zarin W, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Annals of Internal Medicine 2018;169(7):467-73. doi: 10.7326/M18-0850.
3. Devane D, Burke NN, Treweek S, et al. Study within a review (SWAR). Journal of Evidence-Based Medicine 2022;15(4):328-32. doi: 10.1111/jebm.12505.

Publications or presentations of this SWAR design
This SWAR design will be referenced within a prospectively registered scoping review protocol on the Open Science Framework (OSF), which describes the planned implementation of the SWAR as part of the review methodology.

Examples of the implementation of this SWAR
This SWAR is currently being implemented within an ongoing scoping review on post-Latarjet rehabilitation, conducted as part of an academic thesis in physiotherapy. Data collection and analysis are ongoing at the time of registration.

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