

Assessing the Application of Artificial Intelligence Techniques for Systematic Reviews and Meta-Analysis

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INTRODUCTION

- Artificial Intelligence (AI) has become an integral component of numerous professional domains. It has been observed that the use of AI in systematic literature reviews (SLRs) and meta-analysis is increasing.

OBJECTIVE

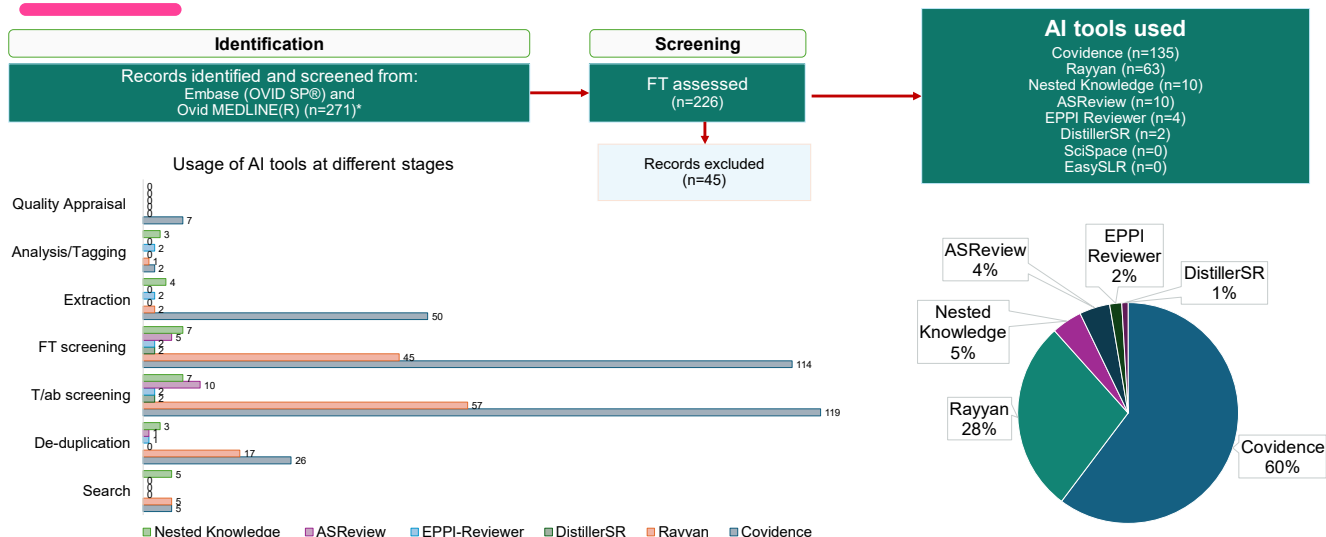
- The objective of this research describes the AI techniques used in the SLR and meta-analyses process phases

METHOD

- Medline (OVID SP®) and Embase (OVID SP®) databases were searched for relevant SLRs on 20th May 2024
- There were no restrictions on language, geography, and medical conditions

Inclusion Criteria	
Population	No restriction
Intervention/ AI tool assessed	SciSpace, DistillerSR, EPPI-Reviewer, Rayyan, Covidence, ASReview, Nested Knowledge and Easy SLR
Outcomes	AI used in search, deduplication, title and abstract (ti/ab) and fulltext (FT) screening, extraction, analysis, risk of bias (RoB), reporting or any other
Study Type	SLRs or meta-analysis

RESULTS



*A total of 742 articles were retrieved from Medline and 1,557 from Embase (with a temporal limit of 2019 to May 20, 2024). After deduplication, 619 articles were removed, leaving 1,680 articles included in the analysis. To further refine the search according to our objective, a filter was applied for the year 2024, resulting in 271 articles screened.

RESULTS cont'd

- Covidence is the most frequently used tool with AI techniques across all stages, indicating its versatility and widespread acceptance.
- Title/Abstract Screening (197) and Full-text Screening (175) are the stages with the highest usage of AI tools, reflecting the critical role AI plays in these processes.
- AI tools have been moderately used for extraction (58) and De-duplication (48) followed by search (15) indicating its effectiveness in these stages of SLR process.
- Analysis/Tagging (8) and Quality Appraisal (7) have the lowest AI tool usage, suggesting their underdevelopment in these stages.
- None of the studies reported usage of AI tool in meta-analysis.

CONCLUSION

- AI tools are playing an increasingly significant role in enhancing the efficiency and accuracy of SLRs.
- Wider adoption and training on existing AI tools, however, could further enhance their usage across all stages of SLRs.
- Continued assessment of the effectiveness of AI tools in different stages of SLRs will be crucial in refining their applications and improving the overall quality and efficiency of literature reviews.

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