Filled Checklist: PRISMA

1. Title

Structured Information Retrieval from Medical Documents using Large Language Models

2. Abstract

The abstract is not explicitly provided in the given manuscript text snippet.

3. Introduction: Rationale

Current radiology report search tools are limited due to poor specificity, susceptibility to misclassification, and lack of semantic understanding, leading to increased time investment for radiologists and manual curation requirements for researchers.

4. Introduction: Objectives

The objective of this study was to develop a scalable method for training a domain-specific embedding model for radiology report semantic search.

5. Methods: Protocol and registration

Not reported.

6. Methods: Eligibility criteria

Not provided. The manuscript snippet does not mention eligibility criteria for participants or studies in its methods section.

7. Methods: Information sources

No specific information is provided about the methods used to identify or select information sources for this study. The text focuses on the background and objective of the study, but does not mention anything about information sources.

8. Methods: Search

The manuscript does not provide detailed information about the search methods used in the study. It mentions that the authors developed a scalable method for training a domain-specific embedding model for radiology report semantic search, but it does not describe the specific search methods employed. However, based on the context, it can be inferred that the search performance of the resulting model (RadSearch) was evaluated using several search metrics, including retrieving reports with similar report findings using free-text queries and enhancing LLM diagnostic accuracy.

9. Methods: Study selection

No specific information is provided about study selection methods.

10. Methods: Data collection process

The manuscript does not provide specific details about the data collection process. (If you'd like me to infer or assume anything from the surrounding context, please let me know.)

11. Methods: Data items

No answer can be provided as there is no mention of data items in the manuscript text snippet.

12. Methods: Risk of bias in individual studies

Not applicable. The text does not discuss risk of bias in individual studies.

13. Methods: Summary measures

The study evaluated the performance of RadSearch using several search metrics, with the primary outcome metrics being: 1. Retrieving reports with similar report findings using free-text queries 2. Enhancing LLM (Large Language Model) diagnostic accuracy. No specific summary measures are mentioned in the provided text.

14. Methods: Synthesis of results

The manuscript does not provide explicit information about how the results were synthesized. It mentions the evaluation of search performance using several metrics and outcomes, but it does not describe a synthesis of these results.

15. Methods: Risk of bias across studies

Not applicable, as there is no mention of risk of bias across studies in the provided manuscript text.

16. Methods: Additional analyses

No additional analyses are mentioned in the provided text.

17. Results: Study selection (flow diagram recommended)

No study selection or flow diagram is mentioned in the provided text.

18. Results: Study characteristics

Study characteristics: * Study type: Original research * Field of study: Radiology and computer applications * Objective: To develop a scalable method for training a domain-specific embedding model for radiology report semantic search.

19. Results: Risk of bias within studies

Not applicable. The provided text does not describe a study with results, but rather an introduction to a research topic and objective of a study. There is no mention of risk of bias within studies.

20. Results: Results of individual studies

Not applicable, as no results of individual studies are presented in the provided text snippet.

21. Results: Synthesis of results

The primary outcome metrics were retrieving reports with similar report findings using free-text queries and enhancing LLM diagnostic accuracy. (Note: The manuscript snippet does not explicitly provide a synthesis of results, but rather describes the objective, methods, and primary outcome metrics of the study.)

22. Results: Risk of bias across studies

Not applicable, as there are no study results or comparisons presented in the provided manuscript snippet to assess risk of bias across studies. The text appears to be an introduction and background section for a research paper, but it does not include any study findings or descriptions of other studies being compared.

23. Results: Additional analysis

The RadSearch model was evaluated using several search metrics to retrieve reports with similar findings and enhance LLM diagnostic accuracy.

24. Discussion: Summary of evidence

The existing literature suggests that conventional search mechanisms in radiology are limited by poor specificity and lack semantic understanding (1). Additionally, researchers have noted that current search methods often lack the required specificity, necessitating manual curation of datasets, which is time-consuming and introduces bias (2–7). Note: The answer only includes information present in the provided text.

25. Discussion: Limitations

The limitations of current radiology report search tools are: * Poor specificity * Susceptibility to misclassification * Lack of semantic understanding (1) * Time-consuming manual curation of datasets for researchers, which introduces potential bias (2–7)

26. Discussion: Conclusions

The study successfully developed a scalable method for training a domain-specific embedding model (RadSearch) for radiology report semantic search, which improved LLM diagnostic accuracy and retrieved reports with similar findings using free-text queries.

27. Funding

No funding information is mentioned in the provided text snippet.