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PROTOCOLS

Adherence to literature search reporting guidelines in leading rheumatology journals' systematic reviews: umbrella review protocol

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Abstract

Literature searches are important components of systematic reviews. They are not only informative of the retrieval process, but they also set the data to be analyzed and influence additional components of systematic reviews. Despite the available guidelines, several studies have shown that the quality of reporting in systematic reviews is deficient in several medical fields. Systematic reviews may not comply completely with those guidelines despite explicitly stating they do. This protocol intends to answer to what extent systematic reviews published in rheumatology journals have complied with the PRISMA's search strategy guidelines published in 2009. The objective of the study is to analyze the compliance with the PRISMA (2009) search strategy guidelines among systematic reviews published in leading rheumatology journals. Inclusion criteria for this umbrella review protocol are systematic reviews (with or without meta-analyses) that mention having followed the PRISMA statement (2009) in their methods section, and published in journals listed in the Rheumatology category of the Journal of Citations Report 2020. Exclusion criteria are articles published before 2009; retraction letters, notes, expressions of concern; systematic reviews using PRISMA 2020. Databases to be consulted are Web of Science, PubMed and Scopus, from inception to present. Data summaries will be presented in graphs, figures, tables and network maps. A narrative synthesis will be described. This protocol complies with guidelines such as PRISMA 2020, PRISMA-A, PRISMA-P, PRISMA-S, PRESS, and JBI Manual for evidence synthesis, as long as it is suitable for umbrella review protocols. Articles in any language will be considered.

Keywords PRISMA · Search strategy · Rheumatology · Systematic review

Introduction

Systematic reviews (with or without meta-analysis) provide strong evidence in health research. More systematic reviews are published each year and now exceed the number of published controlled clinical trials [1]. Literature searches are essential components of systematic reviews [2].

A search strategy includes selecting appropriate databases, reference management, and documenting the searching methodology [1]. They are not only informative about the retrieval process, but they also set the data that will be analyzed. Several additional elements of the systematic reviews (such as screening, data extraction, and data synthesis) are influenced by the search strategy employed. Thus, search strategies must be carefully designed and conducted to reduce bias [2] and be easily replicated by other researchers [3]. This stage of literature searching may be complex. Some components of a search strategy are listed in Table 1 [2].

A previous guideline published in 2007 recommended searching at least two electronic databases, reporting the data for the searches and the search terms used (either keywords or MESH terms). Also, consulting additional sources like reviews, books, registers, experts or reviewing the studies' references are recommended.

In turn, the "Preferred Reporting Items for Systematic Reviews and Meta-Analyses" (PRISMA) statement

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Table 1 Main elements of a search strategy

Components of a search strategy
Deciding who should undertake the literature search
Determining the aim and purpose of literature search
Preparing for the literature search
Designing the search strategy
Determining the process of literature searching and deciding—where to search (bibliographic database searching)
Determining supplementary search methods
Managing the references
Documenting the search

considers that a full search strategy for at least one platform, including all limits and filters applied, should be reported [4]. These recommendations have been extended with the 2020 version of the statement [5] and the "Extension to the PRISMA Statement for Reporting Literature Searches in Systematic Reviews" (PRISMA-S) [2]. However, these documents were not published until recently. Significant changes to those recommendations correspond to the PRISMA-S extension, which comprises 16 items devoted entirely to report search strategies [2].

Search strategies should be described in systematic review protocols [6]. Registration or publication of systematic review protocols is essential for several reasons, including the following: planning and documenting review methodology, preventing arbitrary decision making, allowing readers to assess for selective reporting, and avoiding duplication of efforts [6]. However, this is not performed in most cases. According to some studies, only 20% of systematic reviews have a registered or published protocol [7].

Rationale for this study

Despite the available guidelines, it has been suggested that the quality of reporting in systematic reviews in several medical fields is deficient [8]. This is more evident for non-Cochrane reviews [9], which may account for up to 90% of all systematic reviews [7]. Among other items, the search strategy description may be under-reported [10]. Furthermore, 95% of systematic reviews did not report a reproducible search strategy [3].

Although meta-analyses show better adherence to reporting guidelines when mentioning "PRISMA" [11], it has been reported that systematic reviews may not comply entirely with those guidelines despite explicitly stating they do [12].

A systematic review evaluating the quality of reporting search strategies in narrative and systematic reviews on arthritis according to the QUOROM statement was published more than 10 years ago [13]. The present study evaluates adherence to the PRISMA statement's recommendations

for reporting search strategies. This could be addressed by an umbrella review since, for this method of evidence synthesis, "a systematic review is the main and often sole 'study type' that is considered for inclusion" [14]. In addition, several indexed journals and systematic reviews in the Rheumatology field allow a comprehensive analysis.

Methods

Protocol development

We used an online tool to define the appropriate type of review article for our research questions and objectives, and the result was an overview of systematic reviews (umbrella reviews) (available at https://whatreviewisrightforyou.knowledgetranslation.net/map/results?id=6059&code=cT3byZ8iJj).

The PROSPERO (https://www.crd.york.ac.uk/prospero/), Joanna Briggs Institute's Clinical Online Network of Evidence for Care and Therapeutics (JBI COnNECT+, https://connect.jbiconnectplus.org/) and Open Science Framework (https://osf.io/) were revised systematically to identify ongoing protocols for systematic reviews related to our main research question, and no results were found (April 7th 2021; updated on June 6th, 2022).

The protocol for this umbrella review complies with the JBI Manual for Evidence Synthesis [14], complemented with the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA 2020 [5]), and its extensions for abstracts (PRISMA-A [15]), protocols (PRISMA-P [6]) and search strategies (PRISMA-S [2]). Therefore, those guidelines were applied as much as it is suitable for an umbrella review protocol.

Our protocol was drafted by the research team and revised as necessary. Our research team comprises researchers with different profiles: clinical, preclinical, and socio-medical researchers.

Research question

The primary research question for this protocol is: to what extent systematic reviews published in rheumatology journals (Pro) have complied with PRISMA's search strategy guidelines (Phe) published in 2009 (T)? [Framework used: ProPheT (Problem, Phenomenon of interest, Time)]. Additional research questions [16] are described in Table 2.

Table 2 Research questions for this umbrella review

Question type	Framework	Description
Main research question	ProPheT (Problem, Phenomenon of interest, Time)	To what extent systematic reviews published in rheumatology journals (Pro) have complied with the PRISMA's search strategy guidelines (Phe) published in 2009 (T)?
Secondary research question 1	ProPheT (Problem, Phenomenon of interest, Time)	How many systematic reviews (Pro) have published each Rheumatology journal (Phe) from inception to present (T)?
Secondary research question 2	ProPheT (Problem, Phenomenon of interest, Time)	Which is the mean impact factor (Pro) of systematic reviews published in Rheumatology journals (Phe) from inception to present (T)?
Secondary research question 3	ProPheT (Problem, Phenomenon of interest, Time)	Which is the mean number of citations (Pro) received by systematic reviews published in Rheumatology journals (Phe) from inception to present (T)?
Secondary research question 4	MIP (Methodology, Issues, Participants)	What is the relationship (M) between journal impact factor and adherence to PRISMA guidelines (I) among systematic reviews in Rheumatology journals (P)?

Objectives

This review aims to analyze compliance with the PRISMA (2009 version) search strategy guidelines among systematic reviews published in leading rheumatology journals.

Search strategy

An original search strategy was elaborated by a trained researcher and is reported according to PRISMA-S [2]. Published studies will be retrieved from Web of Science, MEDLINE (PubMed), and Scopus, from database inception to the present. Consulted databases, their providers, and dates of coverage (if available) are available elsewhere (Appendix A, https://osf.io/xry3b/?view_only=70635ea0a52c48518fec1f7bdf8f4a0f). The complete search strategy is described in Appendix B (available at https://osf.io/xry3b/?view_only=70635ea0a52c48518fec1f7bdf8f4a0f). No other registries or sources will be consulted. No cited or citing references will be considered.

Articles written in languages different than English and Spanish will be included if adequately translated using Google Translate [17] or if English or Spanish translations are found. Another researcher has reviewed this search strategy using the Peer Review of Electronic Search Strategies guideline (PRESS [18]).

Retrieved references will be de-duplicated with Rayyan QCRI using its default algorithm [19]. Identified duplicates will be manually revised to confirm duplicated publications and will be eliminated [19].

All abstracts will be assessed for eligibility using Rayyan QCRI by two independent researchers, according to predefined criteria. Discrepancies will be solved with a third decision. Excluded articles will be verified by another researcher to confirm exclusion decisions. Full text from the studies selected for inclusion will be retrieved for data extraction. Authors will be contacted if necessary.

Agreement between reviewer pairs will be assessed using Cohen's Kappa [20]. Included references will be retrieved using Scite (https://scite.ai/home) to identify retracted studies, which will be excluded from the final analyses.

The search strategy will be rerun after 6 months of the initial search and/or before the final analysis to identify more recent studies for possible inclusion. Results from the search strategy will be described in a PRISMA flow diagram.

Inclusion criteria

Inclusion criteria for this review will be the following: systematic reviews (with or without meta-analyses) stating (anywhere in the text) having followed the PRISMA guideline (2009) for reporting (or conducting) the review and published in journals listed in the Rheumatology category of the Journal of Citations Report 2020. Although no specific definition for "systematic review" will be applied, it is sufficient if studies mentioned being a systematic review (all types, including scoping reviews) or performing a systematic review. Consensus documents and case reports with systematic literature reviews will also be considered.

Exclusion criteria

Exclusion criteria will be the following: articles published before 2009; retraction letters, notes, expressions of concern; systematic reviews using PRISMA 2020.

These criteria might be adjusted during the screening process if unanticipated issues arise, with the consensus of the author team [20]. Adjustments will be applied to all studies and will be reported in the final review as amendments to the protocol.

Data extraction

Two independent researchers will extract data regarding PRISMA 2009 compliance, and a third researcher will solve discrepancies. A predefined format (spreadsheet) will be used to collect data. This format will be pilot tested with 25–50 retrieved references as in previous studies [21], and may be adjusted if necessary. Also, the number of consulted databases and the number of included/retrieved references (precision of literature retrieval) will be reported.

Additional extracted variables will include: journal name, year of publication, keywords, journal impact factor in the year of publication (according to the Journal of Citation Reports), number of citations received to date (according to the Web of Science), author's names, their affiliation institutions and countries (these variables will be obtained by exporting search results from the consulted databases), document type (review article, case report and literature review, consensus document), and primary objective of the study (the systematic review itself or other).

Assessment of compliance with PRISMA (2009) guidelines will be based on items 7 and 8, as previously reported [3]. In addition, all details on each item mentioned in the PRISMA 2009 explanation and elaboration document will be assessed [22] (See Supplementary file).

Compliance in the following elements will be classified as "yes", "partial", or "no" [23]: Name of each consulted database, Name of platform or provider for each consulted database, Dates of coverage for each consulted database, date last searched, Specify who developed the search strategy, Specify who conducted the search, Report the use of additional mechanisms to identify studies, Report if attempted to acquire any missing information from investigators or sponsors, Full electronic search strategy (line-by-line) for at least one major consulted database, Include any limits used, Any adjustments made for other databases, State whether or not the search strategy was peer-reviewed, Any language restriction, Any date restriction.

Data synthesis

Data summaries will be presented in graphs, figures, tables, and network maps. A narrative synthesis will be presented. The top ten journals with more systematic reviews or most frequently used keywords, author names, affiliation institutions, and countries will be tabulated. Co-authorship, institution, and country networks will be obtained using VOSviewer [24]. The number of systematic reviews per year will be presented as a bar graph. Impact factors and citations will be presented as mean (range). All included studies are eligible for these synthesis methods.

Strengths and limitations of the present protocol

This protocol is adherent to several well-known methodological recommendations, such as the JBI Manual for Evidence Synthesis [14], PRISMA 2020 [5], PRISMA-A [15], PRISMA-P [6] and PRISMA-S [2]. Research questions comply with systematic frameworks. The search strategy was peer-reviewed according to PRESS [18]. Also, the complete search strategy is presented for all database providers to be consulted.

We will include articles written in any language as long as they can be appropriately translated. Our research group provides an interdisciplinary perspective. However, a narrative synthesis will be presented only.

A systematic review evaluating the quality of reporting search strategies in narrative and systematic reviews on arthritis according to the QUOROM statement was published more than 10 years ago [13]. The present protocol will evaluate all systematic reviews in the top leading (JCR indexed) Rheumatology journals.

Declarations

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