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Guidance for conducting systematic scoping reviews

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ABSTRACT

Reviews of primary research are becoming more common as evidence-based practice gains recognition as the benchmark for care, and the number of, and access to, primary research sources has grown. One of the newer review types is the 'scoping review'. In general, scoping reviews are commonly used for 'reconnaissance' – to clarify working definitions and conceptual boundaries of a topic or field. Scoping reviews are therefore particularly useful when a body of literature has not yet been comprehensively reviewed, or exhibits a complex or heterogeneous nature not amenable to a more precise systematic review of the evidence. While scoping reviews may be conducted to determine the value and probable scope of a full systematic review, they may also be undertaken as exercises in and of themselves to summarize and disseminate research findings, to identify research gaps, and to make recommendations for the future research. This article briefly introduces the reader to scoping reviews, how they are different to systematic reviews, and why they might be conducted. The methodology and guidance for the conduct of systematic scoping reviews outlined below was developed by members of the Joanna Briggs Institute and members of five Joanna Briggs Collaborating Centres.

Key words: evidence synthesis, literature review, methodology, scoping review, systematic review

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Introduction

Reviews of primary research are becoming more common as evidence-based practice gains recognition as the benchmark for care, and the number of, and access to, primary research sources has grown. As more authors are conducting reviews to integrate research findings, various review types have evolved with their respective methodologies developing in precision and clarity. In 2009, Grant and Booth identified 14 different types of literature reviews.¹ One of these review types was the 'scoping review'. Although the first framework for scoping reviews was published in 2005,³ scoping reviews are still a relatively new methodology that, as yet, do not possess a universal definition or definitive

method.^{4–6} Scoping reviews have great utility for synthesizing research evidence and are often used to map existing literature in a given field in terms of its nature, features, and volume.³ As such, scoping reviews have also been called 'mapping' reviews.^{3,4,7} In general, scoping reviews are commonly used for 'reconnaissance' – to clarify working definitions and conceptual boundaries of a topic or field.⁵ Scoping reviews are therefore of particular use when a body of literature has not yet been comprehensively reviewed, or exhibits a large, complex, or heterogeneous nature not amenable to a more precise systematic review. While scoping reviews may be conducted to determine the value and probable scope of a full systematic review, they may also be undertaken as exercises in and of themselves to summarize and disseminate research findings, to identify research gaps, and to make recommendations for future research.³

This article will first briefly introduce the reader to scoping reviews, how they are different from systematic reviews, and why they might be conducted. We will then

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explain in greater detail our guidance for the development of systematic scoping reviews using a methodology developed by members of the Joanna Briggs Institute (JBI) and members of five Joanna Briggs Collaborating Centres.

What are scoping reviews and why conduct one?

The JBI views the systematic review and the synthesis of evidence to be at the core of evidence-based practice. Traditionally, systematic reviews have brought together quantitative literature on a particular condition or intervention to answer questions of effectiveness. In addition to effectiveness, the JBI is also concerned with the appropriateness, meaningfulness, and feasibility of healthcare practices and delivery. Such questions are more commonly answered through the consideration of other forms of research evidence, for example, qualitative and economic evidence. The JBI regards the results of well designed research studies of any methodology as potential sources of credible evidence. To correspond with the JBI's broader and more inclusive view of evidence, the Institute has developed a number of theories, methodologies, and processes for the synthesis of diverse forms of evidence to aid decision-making in healthcare.⁸ All JBI systematic reviews begin with the development of a protocol, followed by a rigorous, replicable, and extensive search of the international literature. Whereas a typical systematic review aims to answer a specific question or series of questions according to a rigid set of *a priori* delimiting factors detailed in the protocol, a scoping review will have a broader approach, generally with the aim of mapping literature and addressing a broader research question.

Unlike systematic reviews, the aim of the scoping reviews is a way of mapping the key concepts that underpin a research area.³ Scoping reviews can be particularly useful for bringing together literature in disciplines with emerging evidence, as they are suited to addressing questions beyond those related to the effectiveness or experience of an intervention. Scoping reviews can be conducted to map a body of literature with relevance to time, location (e.g. country or context), source (e.g. peer-reviewed or grey literature), and origin (e.g. healthcare discipline or academic field).⁴ The value of scoping reviews to evidence-based practice is the examination of a broader area to identify gaps in the research knowledge base,⁹ clarify key concepts,¹⁰ and report on the types of evidence that address and inform practice in the field.¹¹ Scoping reviews also may be carried out to determine not only the extent of the

research available regarding a topic but also the way the research has been conducted.¹² For example, a recent scoping review of scoping reviews aimed to provide an overview of how scoping reviews have been conducted.¹³

To support the greater breadth of scoping reviews, a variety of study designs are usually included. This is not prescriptive, however, and reviewers may decide that certain study designs are not appropriate for consideration for their particular scoping review. For example, in a scoping review on homecare safety and medication management for older adults, the review authors considered both qualitative and quantitative study designs.¹⁴ It is, however, important to highlight the distinction between scoping reviews and 'comprehensive systematic reviews', which draw upon evidence from multiple study designs to answer a series of related and specific questions. In a comprehensive systematic review, the goal is to synthesize the evidence from multiple study designs, and often the knowledge (and richness) gained from the qualitative evidence is used to enhance the knowledge gained from the quantitative evidence. In these reviews, the activity of synthesis is actively undertaken. Whereas in a scoping review, the goal is to determine what range of evidence (quantitative and/or qualitative) is available on a topic and to represent this evidence visually as a mapping or charting of the located data. The act of synthesis is not undertaken, but rather the range of located evidence is graphically represented.

Another distinction between scoping reviews and systematic reviews is that unlike a systematic review, scoping reviews are designed to provide an overview of the existing evidence base regardless of quality. Hence, a formal assessment of methodological quality of the included studies is generally not performed.

Developing a systematic scoping review

A scoping review requires at least two reviewers and, as with all systematic reviews, an *a priori* scoping review protocol must be developed prior to undertaking the review itself. Following the same process, as the conduct of a systematic review, the scoping review protocol pre-defines the objectives and methods of the scoping review and details the proposed plans. Whereas deviations from a review protocol for a traditional systematic review are rare, due to the more iterative nature of a scoping review, some changes may be necessary. Any discrepancies should still be clearly detailed and justified in the 'Methods' section of the scoping review report, if and when they occur.

Title

The title must be concise enough to reflect the 'Population', 'Concept', and 'Context' of the review, which are the elements of a scoping review used to establish *a priori* inclusion and exclusion criteria which will be explained in more depth shortly. The scoping review by Godfrey *et al.*,¹⁴ published in 2013, serves as an exemplar for the following discussion on the requirements of a scoping review. The title of this review is: 'Homecare safety and medication management with older adults: a scoping review of the quantitative and qualitative evidence'.

Background

The background of a scoping review should be comprehensive and should cover the main elements of the topic, important definitions, and the existing knowledge in the field.

Review question/objective

The review objective(s) and specific review question(s) must be clearly stated. The objective may be broad and will guide the scope of the enquiry. The review question(s) should be consistent with the title and direct the development of the specific inclusion criteria. In our exemplar scoping review, the objectives of the review were focused on the pertinent issues specifically related to medication management for individuals living at home and receiving homecare services, and were guided by the following research questions:

1. What are the issues encountered by individuals, families, caregivers, and healthcare providers related to the medication management of individuals living in the community and receiving homecare services?
2. What are the documented errors or adverse events that occur in this population that relate to the management of their medications?
3. What strategies have been implemented and evaluated in the home setting that address the issues related to medication management encountered by this population?

Inclusion criteria

As with systematic reviews, inclusion criteria provide a guide to understanding what is proposed by the reviewers and, more importantly, a guide for the reviewers themselves to base decisions on the sources to be included in the scoping review. The rationale or justification for each of the inclusion criteria should be explained clearly and thoroughly in the background.

Types of participants

The relevant characteristics of participants should be detailed, including age and other qualifying criteria, which match the review question and identify them as appropriate for the objectives of the scoping review. In our exemplar scoping review, studies were included that focused on older individuals (mean age 65 years or older) who were receiving homecare services. Studies that focused on providers (licensed or unlicensed) and caregivers [family/friends (paid or unpaid)] who were involved in the medication management process were also included.

Concept

The principal focus or concept examined by the scoping review should be clearly detailed to guide the review's scope and breadth. Explanation of the concept may include details that pertain to the 'interventions' and/or 'phenomena of interest' that would be specified in greater detail in a systematic review. The concept examined in a scoping review may not be related to interventions or phenomena of interest, and may be instead related to research designs, frameworks, theories, or classifications. The standard 'outcomes' of a systematic review may be a component of the concept of a scoping review and should be linked closely to the objective and the purpose of the scoping review. In our exemplar scoping review, the key concept was the process of medication management, and studies were considered that evaluated the process of medication management involving either providers (licensed and unlicensed) or caregivers (family/friends paid or unpaid).

Context

The context of a scoping review will vary depending on the objective(s)/question(s). The context should be clearly defined and may include consideration of geographical or locational factors, cultural factors, and/or specific racial or sex-based interests. The context may also encompass details about the specific setting (such as acute care, primary health care, or community) or discipline (e.g. education, pharmacy, or nursing) under examination. In our exemplar scoping review, the context was the provision of care in the individual's home or residence.

Searching

The approach to searching for studies for a scoping review follows the same three-step method recommended as in standard JBI systematic reviews.¹⁵ The search strategy should be comprehensive in order to identify both published and unpublished (grey literature)

evidence. Each step must be clearly stated in this section of the protocol. The first step is an initial limited search of a selection of relevant databases, followed by an analysis of text words contained in the title and abstract, and of the index terms used to describe the article. A second search using all identified keywords and index terms is then undertaken across all included databases. Thirdly, the reference list of all identified reports and articles should be searched for additional studies. Reviewers should include the languages that will be considered for inclusion in the review, as well as the publication date limitations with an appropriate and clear justification for choices.

Extracting and charting the results

The number of studies identified and selected for inclusion in the scoping review must be reported. There

should be a narrative description of the search decision process accompanied by the search decision flowchart (see Fig. 1).¹⁶ The flow chart should clearly detail the review decision process, indicate the results from the search, removal of duplicate citations, study selection, full retrieval, and additions from reference list searching and final summary presentation.

The extraction of data for a scoping review is referred to as 'charting the results' and should be a logical and descriptive summary of the results that align to the objective/s and question/s of the review. A draft charting table or form should be developed as part of the protocol to record characteristics of the included studies and the key information relevant to the review question. Refinement of the charting forms may be required during the conduct of the full review, and reviewers may need to trial the extraction form on two or three

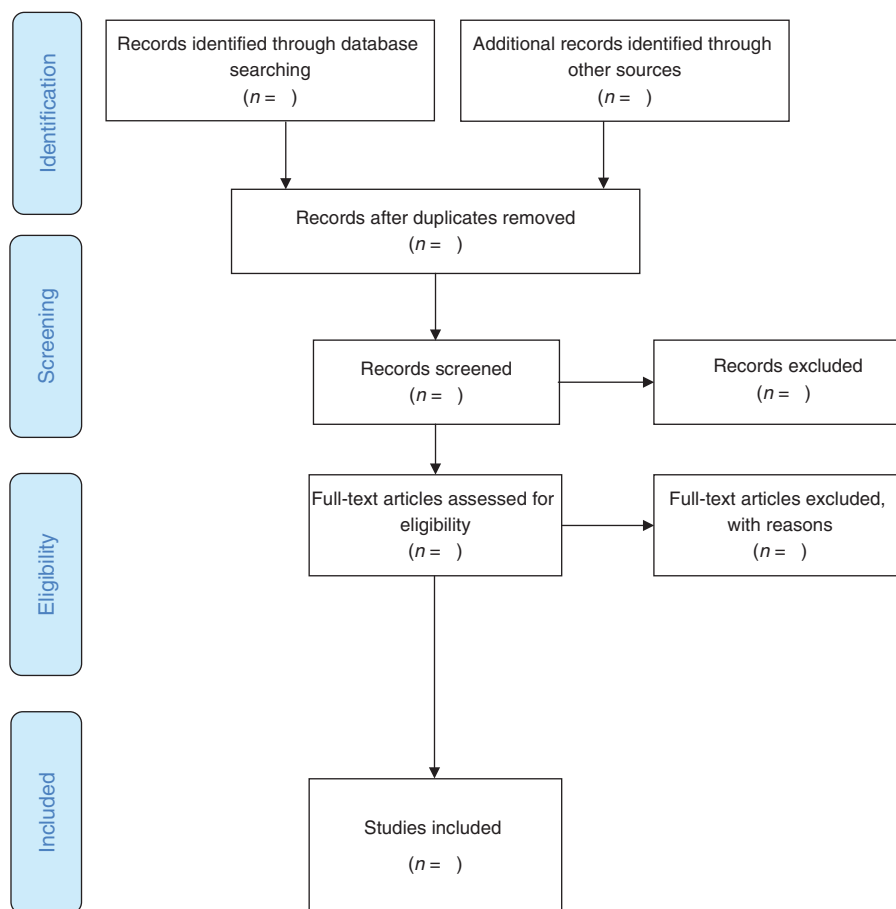


Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram for the scoping review process.¹⁵

Box 1. Example extraction fields

- (1) Author(s)
- (2) Year of publication
- (3) Source origin/country of origin
- (4) Aims/purpose
- (5) Study population and sample size (if applicable)
- (6) Methodology
- (7) Intervention type and comparator (if applicable)
- (8) Concept
- (9) Duration of the intervention (if applicable)
- (10) How outcomes are measured
- (11) Key findings that relate to the review question

studies to ensure all relevant results are extracted (see Box 1 for the types of information that may be extracted).

In a scoping review, the results may be presented as a 'map' of the data in a logical, diagrammatic, or tabular form, and/or in a descriptive format that aligns to the objective/s and scope of the review. The tables and charts may show results as: distribution of studies by year or period of publication (depends on each case), country of origin, area of intervention (clinical, policy,

educational, etc.), and research methods. It is up to the reviewers to decide which would most rationally and clearly illustrate the nature of the results in terms of the objective/s and question/s of the review. A summary of the results should logically describe the aims or purposes of the included articles, the concepts or approaches adopted in each, and the results that relate to the review question/s. For each category, a clear explanation should be provided.

The extracted results may be classified under main conceptual categories depending upon the objective or focus of the review, such as: 'intervention type'; 'study population'; 'duration of intervention'; 'aims'; 'methodology adopted'; 'key findings'; and 'gaps in the research'.

At the time of protocol development, the reviewers should detail a proposed plan for presenting the results. This may then be further refined toward the end of the review when the reviewers have the greatest awareness of the contents of their included studies. In our exemplar



Figure 2. Map of outcomes measured by number of studies in the exemplar scoping review.

scoping review, the results were charted diagrammatically (see Fig. 2 below).

Discussion

This section should include an in-depth discussion of the results of the review, as well as any limitations of the sources included in the scoping review. Results presented in the charting stage should be discussed in the context of the current literature, practice, and policy.

Conclusions and implications for research and practice

The conclusions drawn should match the review objective/question and should begin with an overall conclusion based upon the results of the scoping review. Following on from the conclusion, clear, specific recommendations for future research based on gaps in knowledge identified from the results of the review can be presented. Authors may be able to make comments about the future conduct of systematic reviews that may be appropriate or primary research that is needed in the area of interest. Depending upon the aim and focus of the scoping review, recommendations for practice may not be able to be developed. This is further compounded by the absence of a methodological quality appraisal.

Conclusion

This article began by discussing scoping reviews as an increasingly common approach for seeking and mapping the evidence in broad topic areas. Due to the apparent inconsistency in the conduct of scoping reviews overall, this article then presented a brief overview of the guidance developed by the JBI to standardize the conduct and reporting of the scoping reviews.² This standardization will also improve the utility and robustness of the results of scoping reviews. Following on from Pham et al.,¹³ this study is intended to contribute to the ongoing clarification and enhancement of the scoping review methodology as a synthesis tool for evidence-based healthcare practice and policy. The ongoing interest in evidence-based practice is expected to continue to grow along with the volume of published and grey literature evidence. While methodologies for the synthesis of evidence in systematic reviews are now relatively sophisticated, much refinement is still possible for the conduct of relatively new techniques such as scoping reviews.

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