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ABC of Scoping Review: A simplified JBI Scoping Review Guideline

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ABSTRACT

A scoping review is one of the methods for synthesizing evidence, allowing researchers to determine the scope or extent of literature concerning a specific topic. This approach has increasingly become a favored tool among researchers for its comprehensive examination of literature, identification of existing gaps, clarification of concepts within a domain, and analysis of the methods employed in previous studies. Moreover, it plays a critical role in establishing the framework for a subsequent systematic review, often serving as its foundational phase. However, the initial and extended guidelines for conducting scoping reviews are perceived as lacking in methodological rigor. In response, the Joanna Briggs Institute (JBI) introduced more systematic guidelines to ensure a thorough and rigorous review and reporting process. This article provides a simplified, step-by-step guide for conducting a scoping review in alignment with the JBI recommendations, complemented by practical examples for each step to facilitate a clearer understanding of the process for researchers.

Keywords: Scoping review, evidence synthesis research, JBI scoping review, Joanna Briggs Institute, PRISMA-ScR

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INTRODUCTION

A scoping review represents a relatively recent addition to the repertoire of evidence synthesis research methods, distinguishing itself from traditional approaches such as systematic reviews and meta-analyses. Introduced by Arksey and O'Malley in 2005 (1), the original six-step framework of a scoping review was developed to overcome the limitations of systematic reviews, particularly their often restricted capacity to comprehensively explore broader research questions. Systematic reviews are typically characterized by a focus on high-quality published studies, thereby excluding a range of study designs and diverse research

methodologies. This inherent restrictiveness limits their ability to adequately investigate complex and wide-ranging research topics—a gap that scoping reviews aim to fill.

It is crucial for researchers to judiciously differentiate between scoping and systematic reviews to ensure the selection of the most appropriate methodological tool for their review. Generally, a scoping review serves the purpose of providing a comprehensive overview of a potentially extensive and varied body of literature associated with a broad thematic domain. In contrast, a systematic review undertakes the meticulous compilation of empirical evidence derived from a relatively constrained number of studies that directly address a focused and well-defined research question (2). This deliberate distinction is pivotal in aligning the chosen review approach with the research objectives, thus fortifying the integrity and applicability of the synthesized evidence. The differences between scoping and systematic reviews are summarized in Table 1.

Table 1: Comparison between scoping and systematic reviews

Features	Scoping review	Systematic review
Review question	Review question is often broad	Review question is more focus with narrow parameters
Sources	Gives an overview of a potentially large and diverse body of literature	Collate empirical evidence from a relatively smaller number of studies on a focused question
Selection criteria	Predefined protocol-based eligibility (inclusion and exclusion) criteria *(JBI scoping review guideline and PRISMA-ScR reporting guideline)*	Predefined protocol-based eligibility (inclusion and exclusion) criteria *(PRISMA guideline)*
Search strategies	Explicit, transparent, peer reviewed search strategy	Explicit, transparent, peer reviewed search strategy
Data evaluation and synthesis	Provide an overview mapping of existing evidence. It provides information to formulate systematic review questions	Involves critical appraisal (risk of bias assessment) of the results

Provision of implications for practice	The result has no or limited implications for practice	Provide concrete guidance for evidence-based practice and policymaking

Despite its widespread adoption, the original scoping review framework by Arksey and O'Malley (1) has been subject to criticism, primarily due to a lack of standardized methodology. Although it provides a structured six-step approach, considerable variability exists in the implementation of each stage, which could affect the reliability and comparability of findings from different scoping reviews. To address this limitation, Levac et al. (3) introduced an extended scoping review guideline in 2010 aimed at enhancing the review process with greater clarity, structure, and rigor. This enhancement sought to make the methodology more systematic, transparent, and adaptable across various research contexts.

Nevertheless, the guidelines proposed by Levac et al. (3) did not fully resolve the intricacies of data synthesis, especially regarding the development of precise inclusion and exclusion criteria. Consequently, in 2014, the Joanna Briggs Institute (JBI) working group introduced a more systematic and transparent approach to tackle these issues (4,5). The JBI's contribution seeks to standardize the scoping review process, promoting a more rigorous and consistent approach to conducting and reporting findings (6). This initiative includes adopting the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) framework, enhancing methodological transparency and reporting quality (7). A comparative analysis of the three sets of guidelines is detailed in Table 2.

Table 2: Comparison between Arksey and O'Malley, Levac and JBI scoping review guidelines

Criteria/ Aspect	Scoping review guidelines		
	Arksey and O'Malley guideline	**Levac guideline**	**JBI Scoping review guideline**
Methodological approach	It follows original framework with roots in sociological sciences	It enhances the original framework by Arksey and O'Malley	The methods are more transparent.
Identification of research question	Broadening or narrowing the research question may occur.	Broadening the research question is encouraged if needed.	Formulating the research question based on the Population, Concept, and Context (PCC) framework.
Identification of relevant studies	Involves an iterative process, where the search terms may evolve.	Involves an iterative process. Refinement search strategy based on initial search results	It involves a systematic approach using structured search strategies.
Stakeholder consultation	Suggest stakeholder consultation as optional.	Advocates for stakeholder involvement	Emphasizes stakeholder engagement throughout the review process.
Reporting of the result	Notable variation in terminology and reporting tools.	Focusses on consistency and addressing review objectives	Encourages clear reporting and adherence to PRSIMA-ScR reporting guideline.

This paper outlines the JBI scoping review methodology, known for its meticulous approach (8). For enhanced accessibility and clarity, a streamlined description of each review step is provided, complemented by illustrative examples. This guideline aims to make the complex methodology more intelligible and applicable for those new to scoping reviews.

STEPS IN PERFORMING A SCOPING REVIEW

The process of conducting a scoping review begins with the formulation of a review protocol, which acts as a foundational plan, similar to a research protocol and proposal. This protocol assists researchers in meticulously designing the review methodology to reduce potential biases.

A comprehensive scoping review protocol typically includes several key components: (1) an abstract, particularly if the protocol will be published in a scientific journal; (2) a background or introduction section that outlines the rationale for undertaking the scoping review and formulates the review question(s); (3) inclusion criteria specifying the types of participants, concepts, contexts, and sources to be considered; and (4) a methods section detailing the strategies for searching literature, extracting data, and presenting findings (9).

The overall process involves ten key steps derived from the JBI Manual for Evidence Synthesis guideline (10), providing a comprehensive roadmap for researchers and guiding them from the preliminary planning phases to the completion of the scoping review. These steps are elaborated upon in the ensuing subsections.

Step 1: Identifying the study area

The initial step involves pinpointing the specific field of study to be scrutinized. Establishing a foundational understanding of the literature pertaining to the chosen topic is crucial for grasping the contextual and conceptual intricacies of the study area. This involves delving into the purpose behind reviewing the selected topic and acquiring a succinct yet comprehensive overview of existing knowledge. Key objectives at this stage include highlighting pivotal findings from existing literature and setting clear operational definitions to ensure accuracy and precision. This foundational step sets the stage for an in-depth and methodical exploration, providing researchers with the requisite insights to proceed with the scoping review (4).

Step 2: Understanding the indications for a scoping review

When determining the most suitable review type for a study, it is critical to thoroughly assess the reasons for undertaking the review (6). This evaluation is crucial in choosing a methodology that effectively

supports evidence synthesis. The meticulousness of this step is paramount to ensuring that the review process adeptly encapsulates its intended scope, thereby safeguarding the validity of the results obtained.

There are five primary indications for conducting a scoping review, each serving a distinct purpose (2). A scoping review is particularly valuable for systematically unveiling and delineating research gaps within a specific field. In situations where a researcher harbors uncertainty regarding the comprehensiveness of available literature pertinent to a given topic, it emerges as an essential instrument for scrutinizing the breadth and depth of the existing body of literature. Particularly in circumstances characterized by an abundance of pre-existing literature, a scoping review plays a key role in clarifying the conceptual framework of the research domain. It accomplishes this by establishing linkages between identified factors in the literature and the designated conceptual framework. Moreover, the utility of a scoping review extends to furnishing critical insights into the extent, diversity, and inherent nature of research activities related to the review. This, in turn, aids researchers in formulating a meticulous methodology tailored to the needs of their specific study. A scoping review serves as a precursor to a systematic review, offering vital parameters and ensuring that researchers are equipped with the necessary background for undertaking a more focused systematic review (11). The indications for conducting a scoping review and its objectives are concisely summarized in Table 3.

Table 3: The indications of scoping review and its purposes

No	Indication	Purposes
1	Identification of knowledge or research gap	A scoping review involves a thorough and systematic search of the wide body of literature related to a research question or topic. During the review, researchers would be able to explicitly point out areas where there is limited or no research, indicating potential knowledge or research gaps.
2	Exploration of existing literature	If there is uncertainty regarding the comprehensiveness of the existing literature on this particular topic, it may be beneficial to consider the initiation of a scoping review. By conducting a scoping review, one can systematically identify, map, and

		synthesize the existing research, providing a comprehensive overview of the state of knowledge in the field.
3	Clarification of concepts and identification of factors associated with the designated concept	An overwhelming abundance of literature on a research area makes meaningful connections among these literature obscured. By undertaking a scoping review, researchers can systematically navigate these literatures and unveil the interconnections, patterns, of concepts within the vast expanse of these scholarly works.
4	Investigation into the research methodologies employed in previous studies	A scoping review's investigation into the range and nature of research methodologies employed in previous studies involves a systematic and comprehensive analysis of the methodological approaches adopted by existing research.
5	Establishment of parameters pertaining to subsequent systematic reviews	Scoping review acts as a precursor to systematic review, whereby the process facilitates development and refinement of research questions and eligibility criteria (as well as other related parameters), and thus enhances the rigor of the subsequent systematic review process.

Step 3: Formulating a precise and informative title

The title should be clear, reflect the core elements of the review, and be congruent with the review objectives, questions, and inclusion criteria. It should explicitly incorporate the Population, Concept, and Context (PCC) pertinent to the research area while also including the phrase “a scoping review” to accurately denote the study type (12). For ease of understanding, the title should be crafted to be direct and informative, without posing questions or presenting conclusions, and maintain a word count not exceeding 25 words. For instance, a scoping review examining the effects of health education interventions on the daily activities of elderly individuals could be aptly titled “Effects of Health Education Interventions on Daily Life Activities in the Elderly: A Scoping Review,” exemplifying the outlined PCC elements detailed in Table 4.

Table 4: Constructing a scoping review title using the “PCC elements”

Step	Description	Elements in the title
Include **“PCC elements”**	**Population:** A specific group of subjects under investigation	"*Effects of Health Education Interventions* on *Daily Life Activities* in the *Elderly*: A Scoping Review”
	Concept: Main idea, theme, or topic of interest that the review aims to explore.	
	Context: Settings, environments, or conditions in which the population and concept are situated.	**Population:** Elderly **Concept:** Effects of Health Education Intervention **Context:** Daily Life activities
Include the term **"a scoping review."**	This term can be included either at the beginning or the end of the title.	"Effects of Health Education Interventions on Daily Life Activities in the Elderly: A Scoping Review” Or “A scoping review of the effects of Health Education Interventions on Daily Life Activities in the Elderly”

Step 4: Presenting a comprehensive background or introduction of the review area

The introduction section of a scoping review protocol plays a crucial role by offering insights into the study’s context (4). It requires a detailed presentation of the literature relevant to the research topic, encapsulating the existing knowledge landscape, emphasizing significant discoveries, and defining crucial terminology (12). In this section, it is imperative to explicitly state the purpose of conducting a review on the selected topic. Furthermore, a detailed justification for selecting a scoping review methodology as opposed to other available review methods should be provided (11).

Step 5: Developing research question(s)

In a scoping review, establishing the review's objectives and formulating the primary research question(s) is pivotal (12). The primary question should possess sufficient breadth to encompass the diversity present in the literature on the chosen topic. Generally, a single, comprehensive primary question is adequate for a scoping review. However, the inclusion of subsidiary or exploratory questions is permissible and can provide deeper insights into particular aspects of the literature. These additional questions should explore various dimensions or subtopics within the main theme.

The research questions for a scoping review must be clear and precise, conforming to the PCC elements (11). In the aforementioned review addressing daily activities among the elderly, the primary research question could be framed as, "What are the effects of health education interventions on the daily activities of elderly individuals?" This formulation directly reflects the PCC elements outlined in the title. Furthermore, the primary research question should be designed to guide the formulation of inclusion criteria for the review.

Step 6: Defining inclusion criteria

Setting inclusion criteria is a critical step in a scoping review, as it defines the scope of sources to be included in the review. The inclusion criteria of a scoping review should comply with the PCC elements (11). For instance, the adaptation of the PCC framework to set inclusion criteria for examining the role of health education in the daily activities of the elderly is systematically presented in Table 5.

Table 5: Examples of inclusion criteria for a scoping review entitled "Effects of Health Education Interventions on Daily Life Activities in the Elderly: A Scoping Review"

PCC element	Description	Example of inclusion criteria
Population *(Elderly)*	Important characteristics of participants, such as age and other qualifying criteria that fit the research questions.	Studies involving individuals aged 65 and older
Concept *(Health education intervention)*	Interventions, phenomena of interest, and/or outcomes	Studies on health education interventions aimed at improving daily life activities for the elderly
Context	Specific settings or conditions that are relevant to the scope of study, such as social, cultural, gender, interests, geographical distribution, or environment	Studies involving elderly individuals aged 65 and above who are community dwelling or under institutional care in urban setting
Type of evidence sources	Information sources can encompass various literature types, such as primary and secondary research studies, guidelines, websites, and other grey literatures. Researchers can keep the information source open for broad inclusivity or set specific limits based on their knowledge of the most relevant sources for a particular topic.	This review includes: 1) published primary research. 2) secondary research limited to systematic review and meta-analysis 3) Grey literature limited to standard referral document, thesis and dissertation, and conference proceedings.

Step 7: Executing a comprehensive search and study selection process

The goal of the search strategy and study selection process, as outlined for JBI scoping reviews, is to achieve exhaustive exploration within the confines of available time and resources. It is advisable to access multiple databases, incorporating both discipline-specific and multidisciplinary platforms, to ensure a broad spectrum of relevant literature is covered (10). A three-step search strategy is recommended, beginning with a preliminary search in at least two pertinent online databases, followed by analyzing keywords and index terms used in the initial findings to refine the search strategy for a more comprehensive search across all identified databases (12). The third step includes reviewing the reference lists of all selected sources for additional relevant studies. The protocol should express the intention to reach out to study authors for

further information if necessary and consider including searches for gray literature (5). The rationale for selecting specific languages and the timeframe for the review must be clearly articulated, indicating a general preference for eliminating language restrictions unless practical considerations necessitate otherwise (12). A dynamic approach to simultaneously identifying all relevant evidence sources is advocated, thereby enhancing the search's thoroughness. The protocol acknowledges the iterative nature of the search process, underscoring the need for clear reporting. The expertise of a librarian or information scientist is highly recommended for effective design and refinement of the search strategy. Documentation of a detailed search strategy for at least one primary database is essential and should be appended to the protocol for reference.

The process of study selection involves clearly established eligibility criteria (11). Pilot testing is advised to ensure the efficacy and reliability of the process. During this phase, team members independently assess up to 25 randomly selected titles and abstracts for alignment with the eligibility criteria. Any discrepancies in the findings, modifications to the eligibility criteria, and additional clarifications or broadening of the document's scope should be collaboratively reviewed by the entire team. Formal screening should commence only upon achieving a consensus threshold exceeding 75% (4).

The study selection process is meticulously carried out across a minimum of three databases, ensuring that a comprehensive set of articles is screened against the eligibility criteria by at least two reviewers. In cases of disagreement, efforts to resolve the issue involve either reaching a consensus among the team or consulting an additional third reviewer. The integrity and consistency of the study selection phase are crucial and are quantitatively assessed through agreement rates among reviewers. These rates are evaluated using established statistical measures, including the intraclass correlation coefficient, Cronbach's alpha, and Cohen's kappa coefficient (12).

Step 8: Performing data extraction

The process of data extraction is a crucial component of synthesizing evidence from the selected studies. During the protocol development phase, it is recommended to develop and pilot a draft charting table or form to capture essential information from each source, including author details, references, and results or findings relevant to the review questions (12). This draft may undergo further refinement throughout the review process, with modifications applied to the charting instrument accordingly. As the charting progresses, it may reveal additional valuable data not initially anticipated. Therefore, the charting procedure is inherently iterative, necessitating regular updates to the charting instrument. Essential data points for charting typically include the article's identification code or number, title, authors, year of publication, geographic origin of the study or publication, aims or purpose of the study, the demographic or characteristics of the study population, sample size, study approach and design, and a descriptive summary of the methods (10). A visual representation of the data charting table is provided in Figure 1.

Source of evidence (citation or ID)	Year of publication	Country	Study design/ approach	Population	Health Education intervention	Daily life activity was affected? 'Yes' or 'No'	What activity was affected?	How was it affected

Figure 1: An example of data charting table

To streamline the charting process, utilizing a Microsoft Excel sheet is recommended. Further efficiency can be achieved by employing online survey tools, such as Google Forms or Microsoft Forms, designed to collect all necessary information. By using these digital tools, reviewers can automatically compile extracted data directly into an Excel spreadsheet.

Step 9: Analyzing and presenting data

The methodology for analyzing data in scoping reviews is primarily contingent on the review's purpose and the author's individual judgment. It is crucial to emphasize that the goal of scoping reviews is not to synthesize findings or outcomes from the included evidence sources. Instead, scoping reviews aim to systematically catalog and examine the extant literature to uncover core themes, knowledge gaps, and potential areas for further research (10,12). Data analysis in scoping reviews can be approached through various methodologies, including conducting a simple frequency count and calculating the percentages of identified concepts, populations, characteristics, or other data relevant to the review questions. Additionally, organizing the extracted data according to predefined concepts is a common practice.

In terms of qualitative analysis, it is vital to note that within the context of scoping reviews, content analysis is primarily descriptive. The employment of thematic analysis is not recommended as it goes beyond the scope of scoping reviews (10). Such analyses are more aligned with the methodologies of systematic reviews.

As for data presentation, multiple formats can be utilized (11). The frequency and percentages of sources—both those included and excluded, along with reasons for exclusion—should be systematically documented using a PRISMA-ScR flow diagram (13). Similarly, the distribution and percentages of concepts,

populations, characteristics, or other data relevant to the review questions can be effectively displayed in tables, visual maps (e.g., evidence gap maps, bubble charts), and figures (e.g., integrative or analytical frameworks) (8). Narrative descriptions are typically used to present content analysis. Illustrations of the PRISMA-ScR flow diagram and an example mapping chart of key concepts are provided in Figure 2 and Figure 3, respectively.

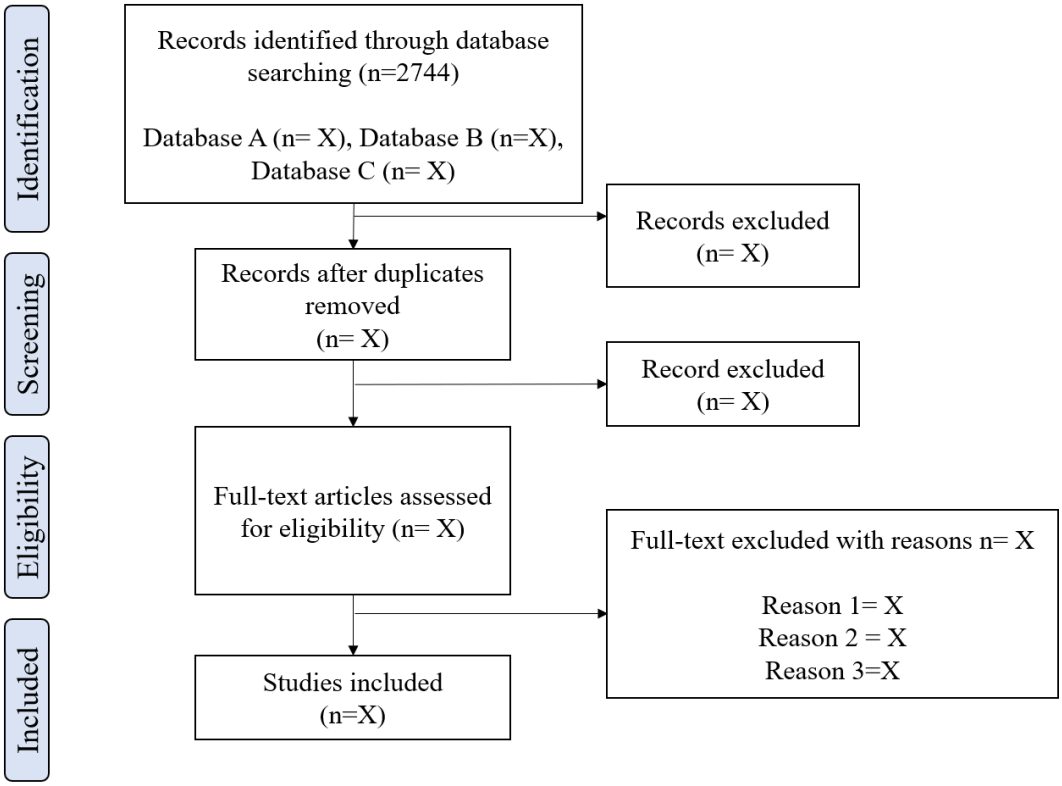

Figure 2: A PRISMA-ScR flow diagram

No	Included studies	Health education intervention															
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	(XXX et al., 2020)								√		√						
2	(XXX et al., 2014)													√			
3	(XXX et al., 2020)				√												
4	(XXX, 2021)	√															
5	(XXX, 2017)	√															
6	(XXX et al., 2020)	√															
7	(XXX et al., 2015)											√		√			
8	(XXX et al., 2018)															√	
9	(XXX et al., 2012)					√								√			
10	(XXX al., 2017)							√									
11	(XXX, 2016)											√		√			
12	(XXX et al., 2016)			√			√										
13	(XXX, 2022)	√															
14	(XXX, 2014)													√			
15	(XXX, 2017)															√	
16	(XXX et al., 2015)					√											
17	(XXX et al., 2020)								√		√						
18	(XXX, 2017)			√			√										
19	(XXX, et al., 2016)	√															
20	(XXX, 2015)					√								√			
21	(XXX., 2020)						√										
22	(XXX and XXX, 2012)							√									
23	(XXX et al., 2014)														√		

Figure 3: An example of mapping chart

Step 10: Finalizing and publishing the scoping review protocol and report

The protocol for a scoping review is suitable for publication in scholarly journals that accept review protocols as manuscripts. Furthermore, documenting the scoping review protocol in open-access repositories, such as Open Science Framework, figshare, ResearchGate, and Protocol Exchange, serves to enhance transparency in the research process. This action not merely prevents bias and selective reporting but also minimizes redundant research efforts by providing a reference for ongoing or concluded scoping reviews.

In addition, the comprehensive review report should also be published, which includes the abstract, background or introduction to the review area, research question, inclusion criteria, methodology of the review, results, discussion, and conclusion. Since scoping reviews often identify gaps in the existing literature and suggest areas for further research, publishing the findings can significantly influence the scholarly field and guide future investigations. Moreover, publication in reputable journals often involves a peer review process, which serves to validate the scoping review's credibility and thoroughness. Feedback

from this peer evaluation can substantially refine the review's methodological framework and enhance its overall contribution to the academic community.

CONCLUSION

In conclusion, employing a systematic framework for scoping reviews, such as that developed by the JBI, equips researchers with a methodical and rigorous strategy for investigating the breadth of literature on a specific subject. Scoping reviews have emerged as an indispensable methodology for delineating the literature's extent, identifying research gaps, and clarifying concepts within a field of study. The provided step-by-step guide based on the JBI recommendations facilitates a systematic and open execution of scoping reviews, making the methodology more accessible for researchers, especially those new to the field. The iterative and structured nature of these steps ensures a comprehensive exploration of the literature, promoting methodological robustness and transparency. By publishing both the protocol and the comprehensive review, researchers contribute to the broader dissemination of knowledge, the transparency of research methodologies, and the overall advancement of evidence synthesis research. Ultimately, this systematic approach aligns with the evolving landscape of scoping reviews, mitigating previous constraints and offering a critical instrument for scholars to effectively navigate the extensive landscape of academic literature.

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