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COMMENTARY

The role of scoping reviews in guideline development

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1. Introduction

The importance of systematic reviews in guideline development is widely acknowledged [1]. According to the formerly known Institute of Medicine, '*clinical practice guidelines are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances.'(pg.8)* [2] Guidelines are foundational to improving the health outcomes of patients and help reduce variations and wastage in the provision of health care [3,4]. Guidelines specify the treatments to provide, their length, the at-risk populations, consideration of patients' values and preferences, and the sensitivity and specificity of diagnostic tests, amongst other

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What is new?

Key findings

- Scoping reviews are a popular form of evidence synthesis; however, their role within the guideline development process has been unclear.

What this adds to what is known?

- We identified five roles scoping reviews have within the guideline development process, these include: 1) to know what existing guidelines could be adopted, adapted or adoloped; 2) to understand the breadth of evidence that exists on a particular issue and help with prioritization of questions, the development of review questions or identify previous systematic reviews; 3) to identify contextual factors and information relevant for a recommendation; 4) to identify potential strategies for implementation and monitoring; and 5) evidence surveillance and living mapping approaches.

What is the implication and what should change now?

- We propose that scoping reviews can play an important supplementary role alongside systematic reviews within the guideline development process.

aspects of health care [4]. In trustworthy guidelines, systematic reviews should underpin all prescribed recommendations [5].

Systematic reviews are an integral part of guideline development especially when forming a recommendation that is applicable for a certain context [5]. The studies included within a systematic review are assessed for their risk of bias, formally synthesized, and the results assigned a level of certainty ideally utilizing a standardized approach such as the Grading of Recommendations, Assessment, Development, and Evaluations (GRADE) framework [6]. Systematic reviews, therefore, enable guideline developers to identify the evidence to support a recommendation and determine the certainty of that evidence to ensure transparency [5,7]. There has been growth of the use of other review types besides systematic reviews within the development of guidelines, such as scoping reviews. Therefore, there is a need to develop greater understanding of the potential usefulness of scoping reviews in guideline development. Scoping reviews '*are a type of evidence synthesis that aims to systematically identify and map the breadth of evidence available on a particular topic, field, concept, or issue, often irrespective of source (*ie*, primary research, reviews, nonempirical evidence) within or across particular contexts (pg 950).*' [8] While scoping reviews cannot replace systematic reviews in guideline development, we propose that they can play an important supplementary role.

There are similarities between scoping and systematic reviews, such as the need for an a priori protocol, and a comprehensive search strategy which make them both 'systematic approaches.' [9] However, their overarching purposes, and thus the questions asked of them are different. In general, scoping reviews have an exploratory focus which enables a broad overview of different evidence sources. Comparatively, systematic reviews generally ask targeted research questions which answer questions regarding the feasibility, acceptability, accuracy, utility, meaningfulness and effectiveness of a particular phenomenon, intervention, test, model, or factor. Scoping and systematic reviews also differ in their conduct. Scoping reviews do not usually assess the risk of bias, determine the certainty of the included evidence, or synthesize the results by statistically pooling multiple studies as in systematic reviews such as in a meta-analysis. Another characteristic that distinguishes scoping reviews from systematic reviews is that typically scoping reviews are largely descriptive in nature rather than analytical when analyzing data and presenting findings [10]. In guideline development, scoping reviews may, therefore, provide supplementary information, whilst systematic review can provide answers about specific question which can underpin recommendation development.

Based on our experience as evidence synthesis methodologists and guideline developers, the JBI Scoping Review Methodology group, along with informal discussions and consensus with expert guideline developers who are also authors on this paper have identified five potential roles of scoping reviews in guideline development. This article explores these potential contributions of scoping reviews in guideline development.

1.1. A warning on the use of scoping reviews in guideline development

Prior to providing guidance on how scoping reviews may be useful in guideline development, we believe it prudent to begin by clearly stating that scoping reviews should *not* be conducted as an alternative to systematic reviews to determine the benefits and harms of interventions, diagnostic accuracy of tests or impact of a prognostic factor when developing a guideline. Systematic reviews have a well-recognized role in guideline development based on the quality of evidence assessment and the synthesis of studies to inform recommendations, usually via meta-analysis [5]. There are distinct differences between the two evidence synthesis types in guideline development as seen in Table 1 which highlights the different roles between systematic and scoping reviews. We once again stress that scoping reviews should be seen to be supplementary to systematic reviews in the guideline development process and

Table 1. Different indications for systematic and scoping reviews in guideline development

Systematic review	Scoping review
When guideline developers need:	When guideline developers need:
1. Answers relating to the benefits and harms of an intervention, the accuracy of a test or prognostic factors. 2. Systematic summaries of the evidence related to feasibility, preferences and values, acceptability, costs/resources, equity implications. 3. An evaluation of the risk of bias and certainty of the included evidence to inform trustworthy recommendations for clinical practice. 4. A meta-analysis can be conducted to statistically pool the results of multiple studies.	1. To know what existing guidelines could be adopted, adapted or adoloped. 2. To understand the breadth of evidence that exists on a particular issue and help with prioritization of questions, the development of review questions or identify previous systematic reviews. 3. To identify contextual factors and information relevant for a recommendation. 4. To identify potential strategies for implementation and monitoring. 5. Evidence surveillance and living mapping approaches.

should only be undertaken on a 'need to' basis rather than as a necessary step.

1. Identify existing guidelines which could be adoloped or adopted and adapted.

The decision to *adopt* or *adapt* current guidelines or recommendations from other contexts, or *adolop* which is the combination of adoption and adaption methods with the added possibility of de novo recommendation can only be made when there is an awareness of the range of guidelines that already exist on the particular topic [11,12]. Searching for guidelines is explicitly recommended by several adaptation frameworks [13]. The methodology of scoping reviews enables mapping of various types of evidence and resources, including guidelines [14]. Used in this capacity, scoping reviews can provide a robust methodology and valuable contribution to the planning and development of guidelines as they can be helpful in identifying anticipated guidelines that are under development or in planning stages (potentially registered in guideline databases) or published guidelines [15,16]. This helps to reduce wasted resources, duplication, and research waste [17].

An example of using scoping reviews to map current guidelines, consensus statements, and standards of practices was in reproductive health service provisions during the COVID-19 pandemic [18]. The researchers found that there was consensus across these evidence sources [18]. As exemplified in Tolu et al., (2021) and others [19–21], scoping reviews of guidelines can also provide an approach to assess the breadth of existing guidelines, whether of international/national scope, from high income/low income countries, and the professional areas of societies, associations or organizations that produced the guideline.

2. Identify how much evidence exists on a particular issue and help with prioritization of questions, the development of review questions or identify previous systematic reviews to assist in the development of guidelines.

Scoping reviews can be used to identify, map, and categorize the available literature in a field or on a particular topic [9]. They are often used by knowledge users to inform where there are gaps in the research or where new systematic reviews may be required [9]. Although there is not one single approach for how to build and prioritize guideline questions, ideally, a guideline panel creates a list of questions based on the expertise of the panel members and through a formal prioritization process with relevant knowledge users who are invested in the production of research, and who may benefit or be impacted by the research that is, academics, patients, health care providers, policy makers, research funders, or decision-makers [22]. As part of this process, guideline developers can use scoping reviews that can summarize the status of the evidence on a particular topic to complement the discussion with the clinical experts and consumers about what key clinical problems exist to be addressed with the recommendations and where current evidence uncertainties exist. For example, a scoping review may identify where there is an abundance of specific strategies and methodologies to investigate a certain topic or a paucity of research in a particular field. A scoping review could also identify what populations, interventions, comparators, or outcomes (PICOs) are being used within the evidence. This identification can support guideline developers by: 1) identifying the preferred outcomes, and if there are any core outcome sets available for the question of interest; 2) identifying relevant synonyms utilized by these studies; 3) identifying what interventions are available, and when they came into fruition, and the settings in which they are available. Subsequently, these can support the development of a comprehensive and specific search strategy for a subsequent systematic review which could reduce personnel resource in screening studies.

An example of this approach is seen in a scoping review conducted in musculoskeletal conditions [23]. This scoping review included primary studies which had conducted priority setting exercises with patients/consumers, clinicians, researchers, policymakers and/or funders. The review identified 294 broad research priorities, and 246 specific

questions which were primarily related to treatment interventions, with some focused-on economics, implementation, and health systems, amongst others. These questions were then synthesized into categories. This scoping review could, therefore, assist guideline developers with the formation of PICO questions and improve the timeliness of conducting this portion of the guideline by restricting the date of the search from November 2017 onward.

For some of the elements, scoping reviews may also be able to inform whether a targeted systematic review is necessary or even possible to be able to inform future recommendations [14]. As such, a scoping review may be considered as a means to systematically collect relevant information as an alternative source of structured and systemized evidence and could potentially be more feasible and consuming less time and resources than a systematic review. For example, a scoping review by Orsso, Montes-Ibarra [24] compiled ongoing clinical trials investigating nutrition interventions as a strategy to prevent or treat low muscle mass or their functions. Their findings indicated that there were inconsistent methodological approaches leading to heterogeneity and this could affect future synthesis needing to conduct a meta-analysis, which can inform future guideline developers regarding the potential limitations of future work and inform approaches, potentially saving time and resources [24].

3. Identify contextual factors relevant for a recommendation

Guideline developers should consider all relevant factors when formulating a recommendation. The GRADE evidence-to decision (EtD) framework assists in this process and explicitly facilitates developers to make judgements regarding not only the benefits and harms of an intervention, but other drivers of a recommendation, including the priority of the problem, preferences and values, resources, cost-effectiveness, feasibility, ethics, environmental impact, acceptability and equity [25]. In an ideal scenario, systematic reviews would be conducted to inform these elements (such as prevalence/incidence reviews for priority, economic evaluations for resources, preference/values reviews, qualitative reviews etc.) [25,26]. In reality, however, many guideline developers only conduct systematic reviews to address the benefits and harms component and do not consider systematically collected and reviewed information for the other elements. This may be because systematic reviews are sometimes not practical or feasible given the challenges and resources required synthesizing some of these forms of evidence, such as preferences and values, costs, and qualitative information) [9]. Systematic reviews are best practice when it comes to assessing harms and benefits; however, scoping reviews (with their broad remit) may be useful to inform contextual considerations when formulating recommendations, especially if there are scarce resources or time constraints, and systematic reviews have been deemed impractical [9].

This might be of potential relevance to groups conducting guidelines in low-resource settings, where the bulk of the workload would be focused on the systematic reviews providing effect estimates vs the contextual factors. For example, health equity is a contextual factor that is often relevant to include within guidelines [27]. Another example is the use of scoping reviews in the GRADE-ADOLOPMENT projects, where the contextualization of EtD is one of the key steps [11]. Guidelines should consider any impact on health equity when making population level recommendations [27]. Scoping reviews can reveal the extent to which equity considerations have been taken into account in the existing evidence (or, indeed, within existing guidelines) as outlined in the PROGRESS-PLUS framework [28]. A recent scoping review outlined how equity issues were reported in randomized trials focused on arthritis in Canada [29]. This scoping review found inconsistent reporting of health inequities within the identified literature, which would be useful to know for guidelines that are being tailored to different patient characteristics within a particular context [29].

4. Identify potential strategies for implementation and monitoring

Ideally, guidelines will consider how they should be implemented during their development and post development. Linked to this is the need to monitor and evaluate the impact of a guideline. Scoping reviews can play a pivotal role in not only identifying viable implementation plans but also in pinpointing clinical indicators for monitoring. This approach enables guideline developers to assess and address barriers and facilitators to guideline implementation, scrutinize any unintended consequences or adverse effects, and propose performance metrics for effective monitoring. This is seen in Lun et al. (2021), where they identified 61 unique guidelines informing prescribing practices within older adults with multimorbidity. Within the identified guidelines, over half provided an implementation plan, including scripts which could be utilized by clinicians when implementing strategies [20]. Another scoping review identified studies regarding how to implement person centered care and support for dementia in outpatient and home/community settings [30]. The findings were able to describe what person centered care is, how it was implemented - including barriers and enablers and specifically addressed strategies of how to tailor this implementation for women [30].

5. Evidence surveillance and mapping.

Scoping reviews are an ideal vehicle to search, retrieve, and categorize the available literature. As we continue to update new approaches to guideline development, such as living evidence approaches and evidence surveillance, living scoping review techniques may be of use [31]. This is a relatively new methodological approach and the role of scoping reviews in evidence surveillance and mapping

utilizing living methods requires further discussion on how to conduct a living scoping review whilst maintaining rigorous and transparent standards, and the impact on resources when managing a broad question. Additionally, it can map the evolution of clinical practices over time and identify emerging trends, as well as identify knowledge gaps or areas where future research is needed.

2. Discussion

The five identified roles highlight the importance of scoping reviews throughout the lifecycle of guideline development and implementation. In addition to these, scoping reviews may identify current practices and methodological approaches in guideline development. We did not consider this to be included within the main five roles already identified as they were specifically related to the development of individual guidelines, rather than improvement of the entire field of guideline development. However, all scientific disciplines should examine, reflect, and critique the current methods applied within the field to course-correct, raise awareness of shortcomings and inform areas for future work and guidance. The field of guideline development is no different and those working in this area should examine, maintain, update as needed and improve methods continuously. For example, the engagement of consumers in guideline development is a cornerstone to the production of high quality of care [32]. However, the authentic inclusion of consumers within the process of guideline development can be challenging and requires expert execution. Two scoping reviews have focused on this topic: the first one discussed approaches used for the inclusion of patients and the public [32] whereas the other investigated more particularly the principles to broaden the diversity of consumers, which should favor the production of guidelines addressing health equity [33]. Another example where scoping reviews have been conducted to investigate current practices is a scoping review of guidelines developed in Australia and their adoption of GRADE, which showed that many guidelines endorsed by the National Health and Medical Research Council were not utilizing the GRADE approach [34].

Along with addressing specific processes in the conduct of guidelines, scoping reviews can identify informed strategies on how to implement them within clinical practice. A recent example is a scoping review which explored strategies to adapt and implement health system guidelines and recommendations in low- and middle-income countries [35]. This scoping review was able to identify several implementation strategies for incorporating guidelines into practice and the barriers and enablers of each one of those strategies. The conclusion of this scoping review was that to be successful at guideline implementation, more than one strategy may need to be utilized. Another scoping review aimed to describe how theories are used to plan or evaluate guideline implementation among clinicians [36]. This particular study found 16 theories that can help identify determinants and barriers in the implementation of guidelines [36]. Consequently, these findings could assist guideline developers in the development of implementation strategies. These scoping reviews (generally conducted by methodologists) can support guideline developers for knowledge generation to improve processes and procedures in the conduct, reporting and implementation of guidelines.

A final consideration for scoping reviews in guideline development is their potential role in identifying bodies of indirect linked evidence to inform the development of good practice statements [37]. However, it is more likely (and feasible) that instead of full scoping reviews, a restricted (or rapid) review will be conducted for this purpose and as such, we did not include it in our five reasons [38].

To ensure that scoping reviews remain beneficial and provide support in guidelines, they need to be conducted according to best-practice guidance, such as the JBI methodology [14] which involves a transparent and rigorous process including an a priori protocol, comprehensive search, screening and extraction process. In conjunction with methodological guidance, scoping reviews should also be reported according to the Preferred Reporting Items for Systematic Reviews Meta-Analyses extension for scoping reviews (PRISMA-ScR) to ensure coherency, transparency, and reduce research waste [39].

In conclusion, scoping reviews, with their capacity to provide a comprehensive overview of existing evidence, are a useful tool for the guideline development community especially when there is a need to identify existing guidelines, what evidence exists on an issue including their methodological approaches, and contextual factors that may impact the recommendations made in guidelines.

CRediT authorship contribution statement

Danielle Kelly Pollock": Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Hanan Khalil:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Catrin Evans:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Christina Godfrey:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Dawid Pieper:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Lyndsay Alexander:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Andrea C. Tricco:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Patricia McInerney:** Writing – review & editing, Writing – original draft, Methodology,

Conceptualization. **Micah D.J. Peters:** Writing − review & editing, Validation, Methodology, Conceptualization. **Miloslav Klugar:** Writing − review & editing, Writing − original draft, Methodology, Conceptualization. **Maicon Falavigna:** Writing − review & editing, Writing − original draft, Methodology, Conceptualization. **Airton Tetelbom Stein:** Writing − review & editing, Writing − original draft, Methodology, Conceptualization. **Amir Qaseem:** Writing − review & editing, Writing − original draft, Methodology, Conceptualization. **Erica Brandão de Moraes:** Writing − review & editing, Writing − original draft, Methodology, Conceptualization. **Ashrita Saran:** Writing − review & editing, Writing − original draft, Methodology, Conceptualization. **Sandrine Ding:** Writing − review & editing, Methodology, Conceptualization. **Timothy Hugh Barker:** Writing − review & editing, Writing − original draft, Methodology, Conceptualization. **Ivan D. Florez:** Writing − review & editing, Writing − original draft, Methodology, Conceptualization. **Romy Menghao Jia:** Writing − review & editing, Writing − original draft, Supervision, Project administration, Methodology, Conceptualization. **Zachary Munn:** Writing − review & editing, Writing − original draft, Visualization, Project administration, Methodology, Conceptualization.

Data availability

No data was used for the research described in the article.

Declaration of competing interest

ACT is the Editor in Chief and IF is part of the editorial board of the Journal of Clinical Epidemiology, but they did not participate in the editorial process of this article and had no influence on the editorial decisions related to it.

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