

Cochrane Update

‘Scoping the scope’ of a cochrane review

Rebecca Armstrong, Belinda J. Hall, Jodie Doyle, Elizabeth Waters

Cochrane Public Health Group, McCaughey Centre, VicHealth Centre for the Promotion of Mental Health and Community Wellbeing, Melbourne School of Population Health, University of Melbourne, Level 5, 207 Bouverie Street, VIC 3010, Australia
Address correspondence to Belinda Hall, E-mail: hallb@unimelb.edu.au

Systematic reviews use a transparent and systematic process to define a research question, search for studies, assess their quality and synthesize findings qualitatively or quantitatively. A crucial step in the systematic review process is to thoroughly define the scope of the research question. This requires an understanding of existing literature, including gaps and uncertainties, clarification of definitions related to the research question and an understanding of the way in which these are conceptualized within existing literature.

This information is often acquired in an *ad hoc* fashion, however a useful and increasingly popular way to collect and organize important background information and develop a picture of the existing evidence base is to conduct a scoping review. Such reviews may be published as a research outcome in their own right and are appealing since they produce a broad map of the evidence that, if sufficiently transparent and widely available via publication, can be used by many and for applications beyond the authors originally intended purpose. Scoping reviews can inform a systematic review, particularly one with a very broad topic scope, such as those edited by the Cochrane Public Health Group.

What is a scoping review?

Scoping reviews have been described as a process of mapping the existing literature or evidence base.¹ Scoping reviews typically differ from systematic reviews in several ways, as outlined in Table 1.

Scoping reviews can be used in a number of ways, for example identifying research gaps and summarizing findings of research.¹ They can also be used to inform systematic reviews, in particular to:

- explore the extent of the literature in a particular domain without describing findings in detail, and

- help identify appropriate parameters of a review (i.e. define the targeted population, intervention, comparison, outcomes, otherwise known as PICO).
- to identify the potential scope of a systematic review and associated costs.^{1,2}

For example, an author might be interested in physical activity interventions. A scoping review would likely reveal that there are numerous forms of interventions used in a range of settings. This would help to identify a more specific research question of interest, based on what was already known (or not known) for each of those interventions within each setting, as well as the commissioning body and/or review author’s area of interest. It would also facilitate a more realistic budget estimate based on the breadth of the work required, since a scoping review should provide an indication of the number of studies likely to be retrieved for each of those interventions/settings. Scoping reviews to inform systematic reviews typically do not include a quality assessment of included studies, which limits data synthesis and interpretation. They are therefore intended to be conducted reasonably rapidly. More comprehensive scoping reviews can take up to a year to complete.³

In order to strengthen rigor for this method of literature review, Arksey and O’Malley developed a framework for conducting a scoping review.¹ This includes five key phases, listed below. Levac *et al.*⁴ have also recently provided recommendations for further enhancing this framework.

- identifying the research question,
- identifying relevant studies,

Rebecca Armstrong, Editorial and Methods Advisor, Cochrane Public Health Group
Belinda J. Hall, Communications and Liaison Fellow, Cochrane Public Health Group
Jodie Doyle, Managing Editor, Cochrane Public Health Review Group
Elizabeth Waters, Coordinating Editor, Cochrane Public Health Group

Table 1 Comparison between systematic and scoping reviews²

Systematic review	Scoping review
Focused research question with narrow parameters	Research question(s) often broad
Inclusion/exclusion usually defined at outset	Inclusion/exclusion can be developed <i>post hoc</i>
Quality filters often applied	Quality not an initial priority
Detailed data extraction	May or may not involve data extraction
Quantitative synthesis often performed	Synthesis more qualitative and typically not quantitative
Formally assess the quality of studies and generates a conclusion relating to the focused research question	Used to identify parameters and gaps in a body of literature

- (iii) study selection,
- (iv) charting the data,
- (v) collating, summarizing and reporting the results,
- (vi) optional consultation.

The current paper provides brief comments on each stage of this framework in relation to how these may apply for a scoping review seeking to inform the conduct of a systematic review in public health.

Identifying the research questions

While scoping reviews can be useful in helping to plan a systematic review question, they also need to be guided by their own question. For example, if the main purpose of the scoping exercise is to identify which study designs to include in the systematic review, this information should be the focus of the question and the data collection phase. In mapping the question it may be useful to ask a series of sub-questions so that a potentially very broad research question is combined 'with a clearly articulated scope of enquiry'.⁴

EXAMPLE

Your potential review question might be 'Flexible working conditions and their effects on employee health and well-being'. A scoping review might seek to identify appropriate interventions and outcomes of a review, and thus the question could be: 'What interventions promote flexible working conditions for employees and what are the possible effects of these on health and other outcomes on employees and other relevant people'. This would facilitate the mapping of 'flexible working conditions', 'employee health and well-being', as well as the intended recipients of such interventions. Having a comprehensive understanding of concepts can help to set boundaries, such as intervention types and outcomes, to be defined in the inclusion criteria, for the systematic review.

Identifying relevant studies

Literature can be sourced through online databases, key organizational websites, reference lists of key papers and hand searching of journals not indexed on Medline or other popular, easily accessible databases. Decisions will need to be made based on the resources available to the scoping process. It may be appropriate to search a more limited range of sources than you would for a systematic review (e.g. search only three online databases and three key organizations). It may also be necessary to limit the publication date and the language of publication. These decisions can be recorded as limitations.⁴

EXAMPLE

A scoping search for the topic 'Slum upgrading strategies and their effects on health and social outcomes' might consider Medline and EMBASE database searches in combination with a search on websites of key organizations, including WHO and UN Habitat.

Study selection

The degree of rigour attached to study selection may differ depending on the resources available to the scoping search. It may be useful to identify a series of inclusion and exclusion criteria (such as narrowing by population, geographic region or intervention type) to allow you to remove irrelevant papers. These criteria may be broader in a scoping review than you would include in a systematic review to provide a map of existing literature which in turn should indicate ways in which it may be appropriate to narrow the focus for a future systematic review. While the inclusion and exclusion criteria for searching may be broader for a scoping review, such a review may prioritize studies that are more easily available, as described above under point 2, while a systematic review may make every attempt to locate all included studies

within a more narrowly defined scope. For all decisions, the goal is transparency and reproducibility, therefore adequate documentation will maximize the utility of any review.

Charting the data

A spreadsheet or database may be created to chart relevant data, based on the focus of the scoping question. This will enable review authors to identify commonalities, themes and gaps in the literature. Potential data collection categories include:

- authors,
- year of publication,
- study location,
- intervention type (e.g. randomized controlled trial, controlled before and after study),
- study population (e.g. community wide or specific population groups),
- aims of the study,
- overview of methods,
- outcomes measures,
- results.

The chosen data collection categories will depend on the focus of the scoping review. For example, if the focus is to identify the range of study designs and to set the scope of the review based on these findings, the authors may only collect data on the first five points above.

Collating, summarizing and reporting the results

The charting of studies is essential to proceeding to this stage. A key difference in a scoping review compared with a systematic review is that the scoping review provides an overview of existing literature usually without assessing quality of included studies and therefore data synthesis is minimal. Some may argue that scoping reviews should include a quality assessment phase,⁴ however this decision will depend to some extent on resource limitations as well as the purpose of the scoping review itself. These factors also determine the way in which results are reported. For

example, the narrative may describe the range of study types or focus on the scope of definitions and the implications of this on the number of located studies. Levac *et al.* (2010) recommend applying meaning to the results by considering the implications of the findings of the scoping review within the broader research, policy and practice context.

Optional consultation

Consultation may be used in scoping reviews to help identify the scope of the problem your question seeks to address. It may be useful to establish a review advisory group structure at the scoping review stage. The consultation may focus on:

- their knowledge of existing studies,
- their knowledge on the topic, including the range of definitions,
- identification of key organizations to search for studies.

Conclusion

Clearly articulating the question and scope of a systematic review is a critical part of the review process, guiding subsequent stages of the process and ultimately the final review product. This process is often undertaken informally based on a combination of review author expertise and various background literature searches. A scoping review is a specific type of review, which can provide a structured approach to the gathering of background information to inform the conduct of a systematic review. Scoping reviews differ from other types of systematic reviews in that they provide a map or a snapshot of the existing literature without quality assessment or extensive data synthesis. While scoping reviews are a valuable resource for informing future systematic reviews, they also represent a research outcome that, particularly if published, can be of use to researchers, policy-makers and practitioners, reducing duplication of effort and guiding future research.

continued overleaf



New Cochrane protocols and reviews of interest to health promotion and public health stakeholders from Issues 10–12, 2010 of *The Cochrane Library* (*denotes CPHG review/protocol)

Reviews

- Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes.
- How effects on health equity are assessed in systematic reviews of interventions.
- Mass media interventions for preventing smoking in young people.
- Motorcycle rider training for the prevention of road traffic crashes.
- Pre-employment examinations for preventing occupational injury and disease in workers.
- Speed cameras for the prevention of road traffic injuries and deaths (updated).
- Stage-based interventions for smoking cessation.
- Vitamin A supplementation during pregnancy.
- Vitamin A supplementation during pregnancy for maternal and newborn outcomes.
- Vitamin A supplementation for postpartum women.
- Vitamin A supplementation for preventing morbidity and mortality in children from 6 months to 5 years of age.
- Vitamin D supplementation for improving bone mineral density in children.
- Zinc supplementation for the prevention of pneumonia in children aged 2–59 months.

Protocols

- Behavioral interventions to reduce the transmission of HIV infection among sex workers and their clients in high-income countries (updated).

- Behavioral interventions to reduce the transmission of HIV infection among sex workers and their clients in low- and middle-income countries (updated).

*Community-level interventions to improve food security in developed countries.

- Home visiting for socially disadvantaged mothers.
- Integrating prevention of mother-to-child HIV transmission programmes with other health services for preventing HIV infection and improving HIV outcomes in developing countries.
- Interventions to reduce corruption in the health sector.
- Nutritional advice for improving outcomes in multiple pregnancies.
- Restorative justice conferencing for reducing recidivism in young offenders.
- Vaccines for preventing herpes zoster in older adults.
- Vitamin D supplementation for preventing infections in children less than 5 years of age.
- Vitamin D supplementation for women during pregnancy.

Funding

The Cochrane Public Health Review Group acknowledges the support of the Victorian Health Promotion Foundation (VicHealth) and the Commonwealth Department of Health and Aging.

References

- 1 Arksey H, O'Malley L. *Scoping studies: towards a methodological framework. Int J Soc Res Methodol* 2005;**8**(1):19–32.
- 2 Brien SE, Lorenzetti DL, Lewis S. *Overview of a formal scoping review on health system report cards. Implement Sci* 2010;**5**:2. doi:10.1186/1748-5908-5-2.
- 3 Centre for Reviews and Dissemination. *Systematic Reviews: CRD's Advice for Undertaking Reviews in Health Care*. York: Centre for Reviews and Dissemination, 2008.
- 4 Levac D, Colquhoun H, O'Brien KK. *Scoping studies: advancing the methodology. Implement Sci* 2010;**5**:69. doi:10.1186/1748-5908-5-69.