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Version Post-Print/Accepted Manuscript

Citation (published version) Colquhoun H, Levac D, O'Brien KK, Straus S, Tricco AC, Perrier L, Kastner M, Moher D.. Scoping reviews: Time for clarity in definition, methods and reporting. *Journal of Clinical Epidemiology*. December 2014. 67(12). 1291-1294 doi: 10.1016/j.jclinepi.2014.03.013.
<http://www.sciencedirect.com/science/article/pii/S0895435614002108>

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Publisher's Statement The final publication is available at Elsevier via
<http://dx.doi.org/10.1016/j.jclinepi.2014.03.013>

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Scoping reviews: Time for clarity in definition, methods and reporting

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Estimates for the generation of research evidence suggest that 75 trials and 11 new systematic reviews are published daily (1). This volume of health research evidence implies that knowledge syntheses are essential to advance practice and research through consolidation of evidence. Such reviews can also help knowledge users work more efficiently to make evidence-based decisions (2). Among the various types of knowledge synthesis, the scoping review has become increasingly popular.

Scoping reviews are a form of knowledge synthesis that incorporate a range of study designs to comprehensively summarize and synthesize evidence with the aim of informing practice, programs and policy and providing direction to future research priorities (3). Scoping reviews have been used to answer a range of research questions from identifying social determinants of health associated with cervical screening for women living in middle and low-income countries, informing improved coverage and research gaps (4), to improving our understanding of how social network analysis interventions could support the implementation of change in healthcare organizations (5).

We conducted an electronic search for ‘scoping study’ or ‘scoping review’ from 1997-2013 in Medline, EMBASE, CINAHL, and PsychINFO, and identified 249 of them. Until 2009, less than 10 scoping reviews were published, annually. Since 2009, consistent yearly increases have occurred with 85 reviews published in 2013 up to December 5 (see Figure 1). Scoping reviews have likely been embraced because they are relevant to both emerging and established fields. In emerging areas of evidence there is a diversity of study methodologies and the trajectory published articles of some content areas makes it difficult to ascertain the extent of the landscape. In established fields where there may be an abundance of evidence, scoping reviews can provide an understanding of the ‘lay of the land’. As a method of knowledge synthesis,

scoping reviews have potential to advance health care practice, policy and research. However, variability and lack of consensus on scoping review terminology (the label we give them), definition, methodological conduct, and reporting prevent scoping reviews from fully reaching this potential. In this paper, we propose recommendations to further advance the field of scoping review methodology.

Arksey and O'Malley published one of the first methodological frameworks for conducting a 'scoping study' (3). Proposed as a methodological guide upon which to build, this six-stage framework consisted of identifying the research question, searching for relevant studies, selecting studies, charting the data, collating, summarizing and reporting the results, and consulting with stakeholders to inform or validate study findings. In 2010, we (HC, DL, KO) drew from our scoping study experiences to build on this methodological framework and proposed recommendations for each stage of the scoping study framework, highlighting considerations for advancement, application and relevance of scoping studies in health research (6). This paper was labeled 'highly accessed' and has been viewed over 16,000 times, indicating the interest in scoping reviews and the pressing need for its ongoing advancement. Since its publication, we continue to observe variability pertaining to terminology labeling for scoping reviews (for example, 'scoping review', 'scoping study', 'scoping method', 'mapping of research', 'literature review', 'scoping exercise method'), definition, methodological conduct and reporting of scoping reviews in the field of health research, making it challenging for readers to evaluate the methodological rigour and quality of conduct for this growing form of knowledge synthesis. Consistent with our observations of variability in the methodological conduct of scoping reviews, a scan of the reference lists for the 2012 scoping reviews found in our search

and that we could readily access (56/64), indicated that less than half (48%, 27/56) referenced A&O.

One of the most widely used descriptions of the scoping review is the one proposed by Arskey & O'Malley in 2005: "scoping studies aim to map rapidly the key concepts underpinning a research area and the main sources and types of evidence available, and can be undertaken as standalone projects in their own right, especially where an area is complex or has not been reviewed comprehensively before" (3). Recently, Daudt and colleagues proposed a revised definition: "scoping studies aim to map the literature on a particular topic or research area and provide an opportunity to identify key concepts, gaps in the research; and types and sources of evidence to inform practice, policymaking, and research" (7). Daudt and colleagues further suggest that scoping reviews should include some form of quality assessment for included studies, a criterion that until now has defined scoping reviews by its absence (3). Competing definitions raise several potential consequences including difficulties collaborating across different research groups, different estimates of the prevalence of scoping reviews and difficulty sharing and retrieving information.

While no imperative exists for a single term and definition of scoping reviews, clarity and consistency in these domains, along with consistent use of existing methodological guidance and the development of reporting guidance would facilitate methodological advancement, reduce potential confusion between practitioners and researchers, facilitate communication and collaboration among researchers and methodologists, and improve knowledge translation of scoping review findings.

Clarity in label, definition and methodology

We offer three recommendations.

1. We recommend that everybody adopt consistent use of the terms ‘scoping review’ or ‘scoping study’ when conducting this type of synthesis.
2. We recommend the use of the following definition:

A scoping review or scoping study is a form of knowledge synthesis that addresses an exploratory research question aimed at mapping key concepts, types of evidence, and gaps in research related to a defined area or field by systematically searching, selecting and synthesizing existing knowledge.

This definition builds on the Arksey and O’Malley and Daudt descriptions to provide a clear definition of the methodology while describing the key characteristics that make scoping reviews distinct from other forms of syntheses.

3. Until such time as further methodological guidance is developed, we advocate for the use of the methodological steps outlined in the Arksey and O’Malley Framework (3) and further enhanced by Levac et al (6) for the conduct of scoping reviews. See Table 1 for a summary of the Arksey and O’Malley Framework stages combined with the Levac et al enhancements.

A call for reporting guidance

The EQUATOR (Enhancing the QUALity and Transparency Of health Research) Network is an international initiative for the promotion of transparent and accurate reporting of research studies. Through the use of reporting guidelines, developed using established EQUATOR processes and housed on their website, it would be possible to critically appraise published

scoping reviews and would increase the reproducibility, completeness, and transparency of reporting the methods and results of scoping reviews. Such work will also provide guidance in the form of a scoping review reporting guidance checklist for researchers, peer reviewers and authors on characteristics to consider in the conduct and reporting of scoping reviews.

The process to develop guidance for the reporting of scoping reviews is underway and will include established steps similar to those used for the development of other reporting guidelines such as PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses): identifying the need for guidance, reviewing the literature, conducting a Delphi consensus exercise to generate a list of appropriate items for consideration, conducting a face-to-face meeting to finalize items, developing guidance and an explanatory document, and creating dissemination strategies for the guidance (8). Similar to the benefits obtained from the development of PRISMA, this guidance will allow for rigorous evaluation of the reporting and methodological quality of scoping reviews.

Conclusions

Knowledge synthesis is important in health care research and practice because it can make sense of abundant volumes of primary research. Scoping reviews are an increasingly popular methodology to synthesize evidence that can be influential for policy and practice. However, variability in labeling, definition, methodology and reporting currently exists which limits their potential. We provide recommendations for a consistent label, definition and methodology. Reporting guidance for the conduct and reporting of scoping reviews are forthcoming. We look forward to achieving a future in which methodologically rigorous scoping reviews can be evaluated for their contribution to advancing the health care field.

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