

## Speaking of Research

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# Using scoping literature reviews as a means of understanding and interpreting existing literature

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**Abstract.** *Objective:* This article compares and contrasts scoping literature reviews with other established methods for understanding and interpreting extant research literature.

*Methods:* Descriptions of the key principles and applications of scoping reviews are illustrated with examples from contemporary publications.

*Conclusions:* Scoping reviews are presented as an efficient way of identifying themes and trends in high-volume areas of scientific inquiry.

**Keywords:** Scientific inquiry, narrative literature review, literature mapping, meta-analysis

## 1. Introduction

An essential element of any sound research program in any discipline is the researchers' thorough familiarity with existing literature in the area under study [7]. The incremental approach to building a scientific knowledge base that characterizes most social science and rehabilitation-related fields requires researchers to cast their new investigations within the context of existing knowledge, usually as evidenced by published literature. The methods that researchers use to synthesize, organize, understand, and interpret existing literature vary widely depending on the discipline, the research questions being considered, the researcher's methodological orientation, the topic being examined, and the nature of existing research methods and findings in the given knowledge domain [14]. Regardless of the approach to the literature review, the researcher must trace

the rationale, conceptual framework, and purpose of his or her investigation to previously published works on the same or a similar topic.

For many years, the three most common approaches to synthesizing and interpreting existing literature in allied health and rehabilitation professions have been narrative literature reviews, empirical literature reviews, and meta-analyses [7]. However, many medical and social science fields have witnessed the emergence of scoping literature reviews as an alternative to traditional literature review methods [1]. The purpose of this article is to compare and contrast scoping literature reviews with other, more commonly employed literature review techniques. We begin with brief descriptions of narrative literature reviews, empirical literature reviews, and meta-analyses, and then the main body of the article describes the purposes, characteristics, methods, and applications of scoping reviews.

## 2. Narrative literature reviews

The aim of a narrative literature review is to reshape previously existing information in a way that

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contributes new perspectives. These new perspectives can then be used to enhance professional practice and inform future research. To accomplish this, narrative literature reviews propose or advance theories and models, explore controversial and/or important topics in the field, present “how to” strategies that aim to improve field practices, and inform readers of important policy changes [7]. In those four ways narrative literature reviews also investigate the issues that need to be addressed in future empirical research. Narrative literature reviews contribute to the research and practice of their specific fields by creating greater depth and insight than can be gleaned from an individual study.

### 3. Empirical literature review

In order to answer questions such as “What authors have made the most significant contributions to the literature?”, “What institutions are most frequently represented in the literature?”, and “What types of studies have been done in particular areas of inquiry?”, empirical literature reviews collect, create, codify, and analyze numeric data reflecting the frequency of themes, topics, authors, and/or methods found in existing literature [7]. Whereas narrative literature reviews summarize existing literature in words, empirical literature reviews present their summaries in quantifiable terms using descriptive and inferential statistics. Examples of empirical literature reviews can be observed in two articles presented by Beck, Janikowski, and Stienbeck [5, 6] in which the authors accumulated comprehensive lists of dissertations in the fields of rehabilitation and disability studies between 1990 and 1993. They organized their lists to reveal the frequencies and percentages of dissertation topic by the type of doctoral program the authors were enrolled in. Another empirical literature review conducted by Cook, Andrew, and Faubion [11] examined the number of contributions that individuals had made to three of the most widely read rehabilitation journals. Publication frequency was also noted across the variables of university, and type of academic programs offered at each institution.

### 4. Meta-analysis

Whereas empirical literature reviews create quantifiable data from existing literature to gain insight into trends in a particular field, meta-analyses take quantified data found within published articles to aggregate

the findings of a number of related studies. For example, if a researcher wanted to compare the effects of two different interventions for treating depression, he or she might find that intervention A was superior to intervention B in 15 studies and that intervention B was superior in 31 studies. Does that mean that intervention B is actually superior; not necessarily, because the empirical literature review employed in this example did not account for sample size, measurement, sampling error, and the like, possibly leading to incongruous representations of overall results [7]. In order to avoid these potential errors, a meta-analysis is designed with specific statistical techniques that take into account the variations in experimental procedure to better translate research findings into congruent data sets. By calculating a uniform statistic, known as the effect size, for each study, the researcher conducting the meta-analysis can describe overall patterns in the results of related investigations. In addition to gaining information regarding the overall results of related experiments the meta-analysis also offers unique insight as to the influence of conditions different in a large number of experiments (e.g. sample size, population, duration of intervention, complexity of intervention) [7].

For example, Bolton and Akridge [8] conducted a meta-analysis to examine 10 skills training interventions for vocational rehabilitation clients across 15 experimental evaluations reported in 12 refereed journal articles. The authors calculated the effect sizes and variances of 61 outcome measures including self reports, standardized assessments, videotapes, and the observational judgments of researchers and rehabilitation professionals. In calculating all of these data from multiple sources and adjusting statistics for variations in experimental variables, Bolton and Akridge were able to identify multiple themes that characterize successful rehabilitation training interventions. Among these themes were active participation by trainees, focusing on behavioral outcomes, mastery and maintenance emphasis on behavioral trainings, reliance on established learning principals, the establishment of clear goals, careful monitoring of individual progress, and a dual emphasis on didactic and experimental activities.

### 5. Scoping literature reviews

Although there have been several descriptions of scoping research methodology published over the past ten years or so, see for example Davis et al. [12]; Anderson et al. [1]; Mays et al. [13], clear consensus does

not exist regarding the definition and purpose of this approach [1]. The purpose of this section is to discuss the scoping review method and present an overview of the steps involved so that rehabilitation researchers and practitioners have a better understanding of how to use scoping reviews.

### 5.1. *What are scoping reviews*

The traditional review strategies described earlier in the article (i.e. narrative reviews, empirical reviews, meta-analyses) represent systematic approaches to synthesizing the research on a particular topic that addresses both the depth and breadth of a research topic. Conversely, scoping reviews tend to be non-systematic in nature and tend to focus on breadth of coverage of the literature conducted on a topic rather than depth of coverage [2,3]. Furthermore, according to Davis et al. [12] scoping reviews – unlike literature reviews, empirical reviews, and meta-analyses – tend to utilize a wide range of research and non research material within the review. It is not uncommon for scoping reviews to contain information from qualitative and quantitative studies and also include informal and formal commentaries from professional meetings. As a result, one of the major differences between scoping reviews and the reviews discussed earlier in this article is that scoping reviews usually do not evaluate the quality of the studies considered in the review.

Davis et al. [12] suggested that scoping studies are commonly policy directed, and tend to be used to guide more focused lines of research and development. They further noted that, for most researchers, scoping reviews are generally considered to be “preliminary investigative processes that identify the range and nature of existing evidence and help in the formulation of a research question(s) and the development of research proposals.” (p. 1390). This represents yet another major difference between scoping reviews and the reviews discussed earlier, that is, that other reviews, by themselves, represent studies that answer specific research questions or would be considered studies in and of themselves.

Despite the basic differences noted here, and the assumption that scoping reviews are simply a preliminary step toward a more in-depth look at a research topic, scoping reviews represent a viable methodological approach that can be employed to examine the breadth of research on a particular topic (see, for example, Anderson et al. [1]; Arksey and O’Malley [2,3] and Mays et al. [13]). Results from a search of several research

databases lend support to this contention. Scoping reviews have been published in journals from a variety of disciplines including business [4], public services [15], education [9,10], health care [1] and nursing [9,10,16].

To fully understand scoping reviews one must first understand the different types of scoping reviews that have been discussed in the literature. In any research study the purpose defines the type of investigation that is conducted, and the same is true for scoping reviews.

According to Arksey and O’Malley [2,3], there are generally two different purposes of scoping reviews. The first purpose focuses on examining the range and nature of a particular research area, or determining, by a review of the material on a topic, if a full systematic review is needed. This purpose is exploratory in nature. The second purpose is more similar to the systematic reviews discussed earlier in that it endeavors to disseminate research findings or to identify gaps in the existing research literature.

### 5.2. *Exploratory scoping reviews*

Reviews that focus on examining the range and nature of a particular research area or determining if a full systematic review is needed are described by Anderson et al. [1] as mapping exercises. These reviews, all exploratory in nature, tend to guide future studies, and they are categorized as literature mapping, conceptual mapping, and policy mapping reviews.

#### 5.2.1. *Literature mapping*

According to Anderson et al. [1] this is the most common type of scoping study. There are two main objectives of literature mapping studies – to identify the location of the literature on a particular topic and to determine the magnitude of the research on a topic. There is no preconceived plan to systematically review the literature located as part of the study itself. With this approach, a researcher might simply consider a specific timeframe for the literature that is to be mapped, that is, what research has been conducted in the past ten years. A researcher may consider where the research is being conducted (e.g., the United States, Europe, etc.), who is conducting the research (e.g., practitioners, individual researchers, research centers), or the publishing source of the research (e.g., non-peer reviewed journals, peer reviewed journals, professional conferences, research briefs, etc.).

### 5.2.2. Conceptual mapping

Conceptual mapping seeks to determine how, and to what extent, specific terms are used in the literature. This type of study may also seek to determine who is using specific terms and for what purposes. Thus, conceptual mapping focuses on the terminology, rather than the research being conducted, on a particular topic. Conceptual mapping is very similar to one of the initial stages of a meta-analysis where the researcher identifies the terms used to conduct the search for relevant studies. The value of this type of study or activity cannot be overstated. If a researcher is unfamiliar with the terms used to identify key concepts in a research domain he or she is not likely to uncover all the literature on a topic. Furthermore, when locating literature in research databases associated with different disciplines, one must be familiar with differences in the terminology used across disciplines to find all relevant research on a topic that might cross disciplines. If one were conducting a full systematic review of the literature that did not include relevant literature from another discipline because he or she was not aware of differences in the terms used this would call into question the validity of such a review.

### 5.2.3. Policy mapping

Anderson et al. [1] suggested that policy mapping exercises are “scoping studies designed to identify the main documents and statements from government agencies and professional bodies that have a bearing on the nature of practice in that area.” (p. 2). These scoping studies rely much less on the research conducted on a topic and much more on the statements made or positions assumed by agencies that inform both practitioners and researchers in the discipline.

### 5.3. Scoping reviews that summarize and disseminate research

According to Arksey and O’Malley [2,3] scoping studies can, and do, go beyond simply examining the range and nature of a particular research area or determining if a full systematic review is needed. Scoping studies can be used to summarize and disseminate findings from different types of research studies and they can be used to identify gaps in the research literature. These types of studies follow procedures and steps similar to those followed in the systematic reviews discussed earlier in this paper. As such, scoping studies that are systematic in nature identify a research question that needs to be addressed; identify criteria

for selecting studies; search for studies using various research databases; include a charting process whereby studies located can be grouped into themes; and summarize the findings using a systematic approach. In the paragraphs to follow we will present the procedures discussed by Arksey and O’Malley [2,3] for conducting a scoping review that could be used to summarize and disseminate research findings and will include a hypothetical rehabilitation context to illustrate these steps.

Let us suppose that we are conducting a scoping review to disseminate and identify gaps in the research literature concerning workplace discrimination against Americans with disabilities. We will use this content domain to illustrate how a scoping study could be conducted to reveal patterns, trends, and themes regarding workplace discrimination.

### 5.4. Step 1: Identify the initial research questions

The first step in the process of conducting a scoping literature review is to determine the research questions to be addressed in the study. The researcher should also investigate the specific aspects of his or her topic to determine the most appropriate search strategies.

A scoping review of research and literature regarding workplace discrimination against people with disabilities could be guided by questions such as:

- What anti-discrimination laws have been the subject of published research in this area?
- What disciplines and what journals within those disciplines publish research in this area?
- What authors are conducting this type of research?
- What is the incidence of perceived workplace discrimination against Americans with disabilities?
- What forms of disability-related discrimination are most common?
- What characteristics of workers are related to the type and impact of workplace discrimination?
- Are certain employers in certain industries more likely than others to discriminate against workers with disabilities?
- What challenges or barriers exist in the implementation and enforcement of Title I of the Americans with Disabilities Act (ADA) and the ADA Amendments Act?
- What factors determine whether people with disabilities prevail in formal proceedings related to workplace discrimination?

### 5.5. Step 2: Identify the relevant studies

In initially identifying studies for a scoping review of workplace discrimination literature, the researcher might begin by selecting a target number of 100 studies for the review. He or she might then decide to limit the articles in the study set to empirical studies that report original or extant data in relation to the research questions. The scoping review may be limited to articles that appeared in refereed academic or professional journals. The author might also review only articles that appeared in print after 1990, the year the ADA was signed into law by President George H.W. Bush. Another strategy for identifying relevant studies could be to target journals that have published special issues on workplace discrimination over the past 20 years (e.g., *Work*, *Journal of Vocational Rehabilitation*, *Journal of Occupational Rehabilitation*, *Rehabilitation Professional*). This stage is also the time to develop a preliminary list of descriptors that can guide the author's search of electronic databases; terms such as accessibility, fair labor practices, equity, inclusion, civil rights, social justice, the Americans with Disabilities Act, Family and Medical Leave Act, Health Insurance Portability and Accountability Act, reasonable accommodations, and the Equal Employment Opportunity Commission could be used to identify articles for inclusion in this scoping review.

### 5.6. Step 3: Study selection

Step 3 involves the refinement of inclusion and exclusion criteria as well as the expansion or search descriptors. In refining the search for workplace discrimination literature, the researcher might find that only 75 articles meet the preliminary extraction criteria. He or she may wish to open the search to commercially published books and conference proceedings to generate a greater critical mass of published works. Related descriptors might be added at this time, possibly including employer attitudes toward workers with disabilities, disability and human resource management, self-advocacy strategies for people with disabilities, employment law, and factors affecting labor force participation among people with disabilities.

### 5.7. Step 4: Charting

Step 4 organizes the data to represent the core descriptive elements of the scoping literature review. Da-

ta display trends in literature giving no distinction to methodological quality or empirical "weight".

In charting findings from the scoping review of workplace discrimination literature, the researcher would describe key themes, trends, and patterns in the articles under study – all at a general level rather than highlighting individual studies or particular findings. For example, the charting stage might reveal that many studies related to workplace discrimination compare and contrast the discrimination experiences of people with different types of disabilities. It might also be revealed that employers in industries such as mining, agriculture, and education are respondents in proportionally more allegations of workplace discrimination than are employers in other industries. It could be charted that people with more visible, obvious disabilities prevail more frequently in ADA employment-related lawsuits than do people with invisible or hidden disabilities. It might also be reported in this phase that a dearth of literature exists regarding the workplace discrimination experiences of people with adult-onset chronic illnesses such as Type II diabetes and multiple sclerosis, thereby revealing a gap in the knowledge base that could be addressed in future investigations.

### 5.8. Step 5: Collating, summarizing, and report the results

Step 5 requires the scoping reviewer to translate the charted themes, trends, and gaps into narrative descriptions that can be disseminated to broad audiences of stakeholders. Our hypothetical scoping study of workplace discrimination might include the composition of a manuscript that could be submitted to a journal in the field of law, human resource management, business administration, supervision and management, vocational psychology, rehabilitation counseling, or disability studies. The author might also prepare the results of his or her scoping review for dissemination via webcasts and professional conferences.

### 5.9. Step 6: Optional consultation stage

The final stage in a scoping review of workplace discrimination literature would involve consultation with key stakeholders. Focus groups with employer organizations, local Chambers of Commerce, disability advocates, vocational rehabilitation professionals, and/or attorneys might be considered as a means of interpreting the results of the scoping review to promote non-discriminatory employment practices. Specific disabil-

ity groups with high incidences of workplace discrimination might be targeted for self-advocacy training that could help people redress discrimination when it occurs. Industry-specific consultation with employers regarding how to prevent the specific types of discrimination that most commonly occur in their industries could be another avenue for translating the findings of this scoping review into practice.

## 6. Conclusion

Scoping literature reviews provide viable alternatives to more traditional methods of reviewing and synthesizing existing literature. Characterized by the identification of broad themes and patterns in a research area with a high volume of published work, scoping reviews provide important foundations for future study by framing research questions, identifying gaps in the knowledge base, and illuminating the most common approaches that researchers use within a given content domain. Scoping reviews have the distinct advantage of exposing readers to a large volume of published literature in an efficient and cost-effective format.

The search methods and purposes of scoping reviews vary depending upon the topic under study and the researcher's curiosity, but the flexibility inherent in this approach to summarizing the literature enables reviewers to make valuable contributions to the field in ways that are personally and professionally relevant. By understanding the characteristics and procedures of scoping literature reviews, researchers can avail themselves of an emerging method for understanding and interpreting important literature in their chosen fields.

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