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ORIGINAL ARTICLE

A scoping review identifies multiple emerging knowledge synthesis methods, but few studies operationalize the method

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Abstract

Objectives: To systematically identify, define, and classify emerging knowledge synthesis methods through a scoping review.

Study Design and Setting: MEDLINE, CINAHL, EMBASE, PsycINFO, the Cochrane Methodology Register, the Cochrane Database of Systematic Reviews, Social Sciences Abstracts, Library and Information Science Abstracts, Philosopher's Index, and Education Resources Information Center were searched to identify articles reporting emerging knowledge synthesis methods across the disciplines of health, education, sociology, and philosophy. Two reviewers independently selected studies and abstracted data for each article.

Results: In total, 409 articles reporting on 25 knowledge synthesis methods were included after screening of 17,962 titles and abstracts and 1,010 potentially relevant full-text articles. Most of the included articles were an application of the method (83.9%); only 3.7% were seminal articles that fully described the method (i.e., operationalized the steps). Most of the included articles were published after 2005. The methods were most commonly used across the fields of nursing, health care science and services, and health policy.

Conclusion: We found a lack of guidance on how to select a knowledge synthesis method. We propose convening an international group of leaders in the knowledge synthesis field to help clarify emerging approaches to knowledge synthesis. © 2016 Elsevier Inc. All rights reserved.

Keywords: Systematic review; Knowledge synthesis; Realist review; Meta-ethnography; Meta-narrative; Meta-synthesis

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1. Introduction

The notion of synthesizing literature is not new [1]. Examples of knowledge synthesis in the field of philosophy date back to the 12th century, and statistical techniques for synthesizing literature were common practice in astronomy in the 17th century. One of the first examples of a rudimentary meta-analytic approach in the health-related literature, in which studies on typhoid vaccination were pooled, was published in 1904 [2]. Statisticians working in the disciplines of education, social sciences, and psychology began advancing modern meta-analytic techniques in the 1970s [3-7].

What is new?

Key findings

• We found that most emerging knowledge synthesis methods were published after 2005, that most focused on nursing, health care science and services, and health policy fields, and that most represented an application of the method (83.9%) as opposed to being seminal articles describing the method in detail (i.e., operationalizing the steps; 3.7%).

What this adds to what was known?

• This is the first study to systematically characterize the features of novel knowledge synthesis methods.

What is the implication and what should change now?

- We found a lack of guidance on how to select a knowledge synthesis method.
- We propose convening an international group of leaders in the field to help clarify emerging approaches to knowledge synthesis.

Empirical methods for conducting systematic reviews and meta-analyses of medical interventions have been formally established through over 4 decades of work by many organizations internationally, in particular the Cochrane Collaboration [8]. Systematic reviews based on these methods have changed the landscape of health research, but the methods themselves have been criticized as being unable to address questions of great complexity, such as exploring patients' perceptions of disease, identifying underlying theories to explain the effectiveness of an intervention, or understanding the facilitators of and barriers to the uptake of an intervention. Because traditional systematic review methods may be inadequate to address these questions, other types of search approaches (e.g., snowballing of articles, focusing on identification of key theories) and analysis techniques (e.g., thematic analysis, grounded theory) may be required.

Consider the following questions: "What are the processes involved with bioterrorism preparedness among nurses?" [9] "What is the lived experience of chronic illness among adolescents, and what recommendations can we make for clinical practice regarding that lived experience?" [10] "How can we better understand the dimensions, processes, and practices of return to work following illness?" [11]. Such complex questions go beyond a simple consideration of what is effective and have resulted in the emergence of other knowledge synthesis methods. For example, the first question has been approached using concept synthesis [12], the second was answered using critical interpretive synthesis [13], and the third was answered through meta-ethnography [14].

Although emerging knowledge synthesis methods can be fruitful in providing answers for decision makers, they are challenging to find because they are used across multiple disciplines, such as philosophy, education, and social science. As well, similar terms are used to describe different methods; for example, each of the terms "meta-ethnography," "meta-narrative," and "meta-interpretation" refers to a distinct method. We aimed to identify and chart the various types of emerging knowledge synthesis methods, in terms of their definitions, comprehensiveness, disciplines, and objectives, through a scoping review of studies using emerging synthesis methods. This is the second in a series of articles reporting the results of our scoping review. The first article provides further details about the importance of research on the topic of emerging knowledge synthesis methods and our rationale for undertaking this scoping review [15].

2. Methods

As outlined in our previously published protocol [16], our scoping review was predicated on the methods outlined by Arksey and O'Malley [17]. We selected a scoping review methodology because it is the most appropriate to address our objectives: to map the literature of evidence that is complex, largely understudied, and dispersed across multidisciplinary fields and to identify gaps where primary methods evidence is lacking and needed. As our methods have been presented in detail previously [16], they are described only briefly here.

2.1. Information sources

We searched several databases from inception to December 2011: MEDLINE, CINAHL, EMBASE, PsycIN-FO, the Cochrane Methodology Register, the Cochrane Database of Systematic Reviews, Social Sciences Abstracts, Library and Information Science Abstracts, Philosopher's Index, and Education Resources Information Center. The literature search was supplemented by scanning the reference lists of included studies, as well as searching textbooks for details about the methods identified. The full literature search strategy for MEDLINE was published previously [16], and the other database search strategies are available on request.

2.2. Inclusion criteria

We included any type of article, study, report, dissertation, book chapter, or complete book that evaluated, used, or described emerging knowledge synthesis methods in health care. Our definition of these methods was developed with input from experts and was based on the authors'

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