



Managing large-volume literature searches in research synthesis studies

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ABSTRACT

Background: Systematic reviews typically require searching for, retrieving, and screening a large volume of literature, yet little guidance is available on how to manage this volume.

Purpose: We detail methods used to search for and manage the yield of relevant citations for a mixed-methods, mixed research synthesis study focused on the intersection between family life and childhood chronic physical conditions.

Methods: We designed inclusive search strings and searched nine bibliographic databases to identify relevant research regardless of methodological origin. We customized searches to individual databases, developed work-arounds for transferring large volumes of citations and eliminating duplicate citations using reference management software, and used this software as a portal to select citations for inclusion or exclusion. We identified 67,555 citations, retrieved and screened 3,617 reports, and selected 800 reports for inclusion.

Discussion/Conclusions: Systematic reviews require search procedures to allow consistent and comprehensive approaches and the ability to work around technical obstacles.

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The escalating interest in systematic reviews and specifically research synthesis studies has generated a burgeoning literature focused on searching for and retrieving relevant research reports. Among the diverse topics addressed are search strategies (e.g., pearl growing and citation searching; Papaioannou, Sutton, Carroll, Booth, & Wong, 2009; Schlosser, Wendt, Bhavnani, & Nail-Chiwetalu, 2006); techniques for locating reports of quantitative, qualitative, and mixed methods studies (Cooke, Smith, & Booth, 2012; Walters, Wilczynski, & Haynes for the Hedges Team, 2006); comparisons of bibliographic databases

to identify those yielding the best returns (McDonald, Taylor, & Adams, 1999; Stevinson & Lawlor, 2004); and recommendations for reporting search strategies and findings (Sampson et al., 2009).

What has yet to be fully addressed, however, is the management of the large volume of literature likely to be found in even the most delimited review, the technical issues and work-arounds necessary to search within diverse bibliographic databases across the social and behavioral science and practice disciplines, and the use of reference management software effectively and efficiently to track search activities and

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outcomes. Regardless of the scope of their reviews, reviewers will likely retrieve and therefore have to manage a much larger number of reports than they will ultimately include. The number of articles retrieved may be even greater when conducting mixed research synthesis studies or reviews that include reports of qualitative, quantitative, and/or mixed methods studies. Careful tracking of the references retrieved and of the decisions made throughout the search process is critical. Moreover, publication of systematic reviews of any kind now requires that the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; <http://www.prisma-statement.org/statement.htm>) guidelines be followed whereby reviewers detail the information sources; delimitations set for the search process; search strategies; and references identified, retrieved, and ultimately included in the review.

Accordingly, our purpose in this article is to describe how we managed a literature search that initially yielded 67,555 documents in our ongoing National Institute of Nursing Research–funded research synthesis study, “Mixed-Methods Synthesis of Research on Childhood Chronic Conditions and Family” (hereafter referred to as the Family Synthesis study). We address how the search was designed; how reports retrieved were tracked, stored, organized, and evaluated for relevance; and how technical problems associated with managing this large volume of references were addressed.

The Family Synthesis Study

The purpose of the Family Synthesis study is to explore the intersection between family life and childhood chronic physical conditions. This is a mixed methods, mixed research synthesis study encompassing reports of empirical qualitative, quantitative, and mixed methods studies and qualitative and quantitative approaches for integrating the findings from these reports (Sandelowski, Voils, Crandell, & Leeman, 2013). Thus, the literature search was designed to be broadly inclusive, with the goal of identifying the full breadth of research findings related to the topic regardless of methodology. Team members include researchers with expertise in family research and synthesis methods and an information specialist with expertise in developing search strategies effective for a range of health and behavioral and social science databases.

What follows is a detailed description of how we moved from an initial search yield of 67,555 documents to the 800 reports we accepted into the study. We detail the key phases in this recursive process and the strategies used to address the challenges we encountered in each phase. We also draw from what we learned from an initial scoping study (Arksey & O'Malley, 2005) we conducted to pilot test and refine elements of the search process we describe here.

Conducting and Managing the Search

Defining Key Concepts

As with all reviews of the literature, we began with an initial definition of the following key concepts in our study: family, child, and chronic physical condition (Cooper, 2010). Family was defined broadly as constituting a group of intimates living together or in close geographic proximity with strong emotional bonds and with a history and a future (Fisher et al., 1998). Child was defined as an individual no older than 18 years. Chronic physical condition was defined as a medical condition lasting or expected to last at least 1 year and producing or expected to produce one or more of the following sequelae for the child: limitation in function or activity; dependence on medication, special diet, medical technology, assistive devices, or persons; and/or the need for health services beyond what is usual for a child of the same age (Stein, Bauman, Westbrook, Coupey, & Ireys, 1993).

Identifying Bibliographic Databases

In consultation with the team's information specialist and based on the results of our initial scoping study, we identified the databases most likely to include reports of research addressing the intersection between family life and childhood chronic physical conditions. During the scoping study, we had assessed the contribution of a range of databases, including Academic Search Premier, CINAHL, Cochrane Database of Systematic Reviews, Embase, ERIC, Family & Society Studies Worldwide, PsychInfo, PubMed, Social Work Abstracts, Sociological Abstracts, and Web of Science. After comparing search yields, we retained all of the databases except the Cochrane and Web of Science databases, which yielded no relevant articles not already identified in searches of the other databases.

Selecting Limits and Search Terms

Bibliographic databases provide a range of options for limiting the overall scope of the search for literature. We limited the search only to English language publications and, to ensure the inclusion of relatively current research (Barroso, Sandelowski, & Voils, 2006), to the years 2000 to the present (or 2011). Consistent with the imperatives of a mixed research synthesis study, no limits were placed on particular types of research designs or methodologies.

The initial search was constructed as three separate topic-specific text-word search strings (i.e., lists of search terms), each of which addressed one of the three central concepts in our study, namely, family, child, and chronic physical condition. Each of these three topic search strings was pilot tested separately before being combined into a final strategy to ensure

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