

Systematic Reviews

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Systematic reviews are a type of literature review in which authors systematically search for, critically appraise, and synthesize evidence from several studies on the same topic (Grant & Booth, 2009). The precise and systematic method differentiates systematic reviews from traditional reviews (Khan, Kunz, Kleijnen, & Antes, 2003). In all types of systematic reviews, a quality assessment is done of the individual studies that meet inclusion criteria. These individual assessments are synthesized, and aggregated results are reported. Systematic reviews are considered the highest level of evidence in evidence-based health care because the reviewers strive to use transparent, rigorous methods that minimize bias.

High-quality systematic reviews are precise, detailed critical summaries of all available primary research on a topic and should be used by nurses to answer clinical questions. Nurses also should incorporate this type of evidence when making practice improvements or developing guidelines. In addition, researchers in nursing looking for funding likely will conduct a systematic review or use an existing review to establish the state of the science in an area. This process of using existing systematic reviews or conducting new ones will help to advance the science of nursing.

The number of published systematic reviews has exploded since the inception of the Cochrane Collaboration 20 years ago. In 1995, the Cochrane Database of Systematic Reviews (CDSR) included 36 reviews, and in 2012, the CDSR included more than 5,200 (MacLehose & Hilton, 2013). During this time, the process for preparing and reporting systematic reviews has undergone changes. Transparency for all aspects of the review process has been encouraged because published reviews that are well done and minimize

bias are very important if the results will be used to make practice decisions (Tunis, McInnes, Hanna, & Esmail, 2013). Standards for reviews that have been adopted by the Cochrane Collaboration, Campbell Collaboration, and Joanna Briggs Institute (JBI) are comprised of reviews that include research groups with specialized skills; international evidence that is translated into easy-to-understand brief reports that can be adapted to practice settings around the world; and rigorous and explicit methods to ensure that the results are reliable and meaningful. The purpose of this article is to present an overview of the types of systematic reviews, where to find systematic reviews, the systematic review process, critical appraisal of systematic reviews, and resources for systematic review training.

Types of Systematic Reviews

Types of systematic reviews are defined by the level of evidence that is most appropriate for answering the review question as well as the research designs of the studies selected for inclusion in the review. A quantitative systematic review may include randomized, controlled trials (RCTs) only, a mix of experimental and quasi-experimental study designs, or observational studies only. Qualitative systematic reviews include studies that use qualitative research designs. The Cochrane Collaboration, which solely had supported and published quantitative reviews, published its first qualitative systematic review in November 2013. The reason for this is that most effectiveness or treatment- and therapy-related clinical questions are best answered with the least amount of bias, using quantitative research designs, whereas questions about values or beliefs are best

answered with qualitative systematic reviews.

The type of studies that are included in a review is driven mainly by the available literature that is relevant to the review question. Systematic reviews cannot be done if no literature exists to review, nor is doing a review worthwhile if the level of evidence of the available studies is not sufficient for the type of clinical question. DiCenso, Guyatt, and Ciliska (2005) identified specific types of systematic reviews that are best for answering four types of clinical questions.

- Meta-analysis or systematic review of RCTs for treatment comparison
- Systematic review of cohort, case-control studies for determining the extent of risk and prediction of future problems
- Systematic review of blinded comparison test and reference value for evaluating specificity or sensitivity of an assessment or test
- Meta-synthesis of qualitative studies for examining perceptions, values, or beliefs.

Finding Systematic Reviews

Several international collaborations have the common goal of providing reliable, up-to-date evidence about effective interventions that can be used by clinicians, administrators, policy-makers, researchers, and the public to make decisions about health or social care. Systematic reviews can be found by searching registries of organizations (see Figure 1).

Each registry has different guidelines for registering, conducting, and reporting a systematic review. The Cochrane

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