

Editorial: What makes systematic reviews systematic?

The systematic assembly, appraisal and synthesis of the findings from multiple individual studies (systematic reviews or evidence syntheses) are employed and valued across a wide range of fields (e.g. Nursing, Medicine, Dentistry, Allied Health Professions). Indeed, a key part of the evidence based health care agenda is the emphasis on systematic reviews of research studies.

With an increasing number of individual studies in any given area it becomes increasingly difficult to keep up to date with the changing nature of the evidence and to provide a meaningful overview of the existing knowledge. Systematic Reviews (SRs) provide the methods needed to prepare an overview of a research field whilst also providing answers to specific questions. Systematic reviews have clear objectives and carefully formulated research (review) questions, predefined eligibility criteria for studies and an explicit, reproducible methodology for analysing and reporting findings. SRs involve searching in a systematic way for all relevant studies, they assess the validity of the included studies, and they can also present a synthesis of study findings.

Importantly, SRs should provide a prior (if possible, published) protocol which clearly maps exactly how the reviewers will go about conducting the review. The protocol details the criteria that will be used to include and exclude studies, to identify what data is important and how it will be extracted and synthesized. A protocol is important because it pre-defines the objectives and methods of the systematic review which allows the reader to see exactly what was planned and to judge where there may have been any deviations. This is in stark contrast to those non-systematic reviews, often written by experts in a field, with an emphasis on the authority of the author where it is usually unclear as to how the studies were selected. For this reason, the search strategy is a vital part of the review protocol because it stipulates where you will be searching for studies (i.e. electronic databases, websites), the terms you will use to search for studies and also details any limitations you might want to put on your search (e.g. date, language). Search strategies help minimise bias in your review by identifying as many relevant studies as feasibly possible. Moreover, a search strategy should enable your search to be replicated by others and in fact is a major factor in what makes systematic reviews different from non-systematic reviews.

Not all SRs will (or indeed can) result in synthesis of the evidence. A well conducted SR could for example find that there are no studies to be included. However, in reviews where more than one study does exist, and it is meaningful to combine their findings, then a form of evidence synthesis can take place. There are many different forms of synthesis depending upon the questions being asked and the methods required to answer them. Regardless of the type of synthesis (e.g. Meta-analysis of quantitative data or meta-synthesis of qualitative data), a clear prior description of exactly what data is to be combined and in what way is essential in order to guard against those types of bias that could occur if the reviewer is left to decide as they go along which data they will include and how they will analyse and report it.

In answer to the question posed above: Systematic Reviews are the application of scientific strategies that limit bias to the systematic assembly, critical appraisal and synthesis of all relevant studies on a specific topic. A “systematic” approach aims to limit the effects of bias which can occur throughout the conduct of a review of the literature.

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