A Review of Reviews

Md. Saleh Uddin¹, S.M. Yasir Arafat²

¹Department of Psychiatry, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh
²Department of Psychiatry, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh

* Corresponding author: Md. Saleh Uddin, Department of Psychiatry, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh, Email: mohammad.salehuddin@gmail.com


Received Date: October 12, 2016 Accepted Date: October 30, 2016 Published Date: November 20, 2016

Abstract

Evidence Based Medicine (EBM) is the nucleus of modern practice of medical science. Review is a comprehensive overview of prior research regarding a specific topic and an approach to extract evidences. There are various review types and among them most common are: Narrative review, Scoping review, Systematic review and Meta-analysis; those are different according to objectives, methodology or overall structure. As a beginner in medical research, people find it harder to be oriented with most accurate classification of review process or article. This review observed the existing variation of trends in reviewing articles in the form of definition, types, purpose, searching process, components and core methodology. Meta-analysis is the strongest form of evidence extractor among all review process and having specific statistical measures to express the result of review.

Keywords: Review, Narrative Review, Review Process, Systematic Review, Meta-analysis
Introduction

The advent of evidence-based practice (EBP) in the early 1990s has seen the role of the health library and information worker in the ascendency, with clinicians increasingly relying on health care literature in their decision making (Grant & Booth 2009). Reviews are becoming indispensable in keeping up with an exponentially growing rehabilitation literature, assisting practitioners and others with finding, evaluating, and synthesizing the contents of many articles (Dijkers 2009). Evidence-based medicine categorizes different types of clinical evidence and ranks them according to the strength of their freedom from the various biases that beset medical research (Masic et al. 2008). Due to emergence of different terminology or naming of review types mentioned by different authorities or authors, there is confusion among readers who wants to be updated with new knowledge. For beginner in medical research it’s further difficult to internalize overall review process and articles within short time span. Ongoing advancement of searching measures for knowledge creation, make the space for the entrance of new review methods or article types persistently. In this narrative review, authors focused to see existence of varieties of review articles and provide an abstract of those different review types for better conceptualization so that knowledge sharing could be easier for professionals all over the globe.

Review

A review is a summary of a subject field that supports the identification of specific research questions (Rowley & Stack 2004). It is a comprehensive overview of prior research regarding a specific topic (Denney & Tewksbury 2012). By means of reviewing literature, researcher can identify the theories and previous research that could be helpful selecting research topic and adopting methodology (Denney & Tewksbury 2012). Previous researches can be critically analysed here.

One can say, it’s a self-contained piece of written work that gives a concise summary and synopsis of a particular area of research (Denney & Tewksbury 2012 and Hewitt 2007). It qualitatively summarizes evidence on a topic using informal or subjective methods to collect and interpret studies (Masters et al. 2010; Čronin et al. 2008). A Good critical review can make you understand that is already known through a story telling and can also convey the strength and weakness of the already established ideas (Jesson & Lacey 2006; Marrelli 2014).

Types

Most of the authors mentioned two types of literature review and these are traditional or non-systemic or narrative review and systemic review (Geibel et al. 2016; Jesson & Lacey 2006; Marrelli 2014; Potter 2004 and Gopalakrishnan & Ganeshkumar 2013). But there are lots of variations described by different authors. According to Maria et al, different types of review exist and these are as follows: Critical review, Literature review, Mapping review, Meta-analysis, Mixed method review, Overview, Qualitative systemic review, Rapid review, Scoping review, State of the art review, Systemic review, Systemic search and review, Systematized review and Umbrella review (Ferrari 2015). Some authors mentioned following list: (full) systematic review; meta-analysis; rapid review; (traditional) literature review; narrative review; research synthesis; structured review and scoping study. Patricia et al mentioned that, there are 04 types of literature review exists: a) Traditional or Narrative review
b) Systemic review c) Meta-analysis and d) Meta synthesis (Potter 2004). But Green et al (2006) mentioned three basic types of review and these are: Narrative review, Qualitative Systemic review and Qualitative Meta-analysis and the narrative traditional review includes: Editorial, Commentaries and Overview articles (Green et al. 2006). Qualitative literature reviews differ from quantitative type and these are: a) Ogawa and Malen’s method b) Phenomenological method (Dijkers 2009).

Purpose

To advance our collective understanding, a researcher or scholar needs to understand what has been done before, the strengths and weaknesses of existing studies, and what they might mean. It also situates an existing literature in a broader scholarly and historical context. It should not only report the claims made in the existing literature but also examine critically the research methods used to better understand whether the claims are warranted. Such an examination of the literature enables the author to distinguish what has been learned and accomplished in study and what still needs to be learned and accomplished. Moreover, this type of review allows the author not only to summarize the existing literature but also to synthesize it in a way that permits a new perspective (Boote & Beile 2016).

The literature in a research study accomplishes several purposes: (a) It shares with the reader the results of other studies that are closely related to the study being reported. (b) It relates a study to the larger, ongoing dialog in the literature about a topic, filling in gaps and extending prior studies. (c) It provides a framework for establishing the importance of the study. Literature reviews are, then, important in: supporting the identification of a research topic, question or hypothesis; identifying the literature to which the research will make a contribution, and contextualizing the research within that literature; building an understanding of theoretical concepts and terminology; facilitating the building of a bibliography or list of the sources that have been consulted; suggesting research methods that might be useful; and in, analysing and interpreting results (Rowley & Stack 2004). In an article authors mentioned that literature review is a means of demonstrating an author’s knowledge about a particular field of study also informs the student of the influential researchers and research groups in the field.

Literature reviews are important for several reasons. Primarily, literature reviews force a writer to educate him or herself on as much information as possible pertaining to the topic chosen. This will both assist in the learning process and it will also help make the writing as strong as possible by knowing what has or has not been both studied and established as knowledge in prior research. Second, literature reviews demonstrate to readers that the author has a firm understanding of the topic. This provides credibility to the author and integrity to the work’s overall argument. And, by reviewing and reporting on all prior literature, weaknesses and shortcomings of prior literature will become more apparent. This will not only assist in finding or arguing for the need for a research question to explore, but will also help in better forming the argument for why further research is needed. Some author says mentioned that, the literature review of a research report “foreshadows the researcher’s own study” (Rowley & Stack 2004). Others argue that the literature review plays a role in: delimiting the research problem, seeking new lines of inquiry, avoiding fruitless approaches, gaining methodological insights, identifying recommendations for further the literature (Denney & Tewksbury 2012).
Many authors described additional reasons for reviewing are: distinguishing what has been done from what needs to be done, discovering important variables relevant to the topic, synthesizing and gaining a new perspective, identifying relationships between ideas and practices, establishing the context of the topic or problem, rationalizing the significance of the problem, enhancing and acquiring the subject vocabulary, understanding the structure of the subject, relating ideas and theory to applications identifying the main methodologies and research techniques that have been used, and placing the research in a historical context to show familiarity with state-of-the-art developments (Hewitt 2007).

Narrative Review

There are several synonyms like traditional review, narrative overview, non-systemic review, and unsystemic review (Geibel et al. 2016; Jesson & Lacey 2006). Narrative reviews are evidence-round ups on specific health care topics—but ones which do not necessarily follow systematic evidence-based criteria (DELFINI 2013). This review can address one or more questions and the selection criteria for inclusion of the articles may not be specified explicitly. Subjectivity in study selection is the main weakness ascribed to narrative reviews that potentially leads to biases (Ferrari 2015). Traditional narrative reviews may lack a focused question, rarely develop a methodology that is peer reviewed, seldom use forms for abstracting data or have independent abstraction of evidence by two or more reviewers, and may go well beyond the evidence in the literature in making recommendations (Dijkers 2009). The research question often broad in scope, search strategies and study inclusion not usually mentioned, most of the time qualitative summary and sometimes evidenced report (Nasseri-Moghaddam & Malekzadeh 2006). While narrative overviews are great papers to read to keep up to date, receive continuing education credits, or challenge your way of thinking, they are not a form of evidence that should be used frequently when making decisions about how to solve specific clinical patient problems. Narrative overviews are one of the weakest forms of evidence to use for making clinical decisions in regard to patient care, primarily because they deal more with broader issues than focused clinical problems (Green et al. 2006). Some authors mentioned that, in narrative review authors may criticizes the included studies but other authors denied such proposition (Green et al. 2006). Some reviewer commented that qualitative synthesis from the overview process based on predetermined preferences of authors and that’s why biased (Dijkers 2009).

In a journal authors mentioned the structure contains: Title, Abstract, Introduction, Method, Discussion, Conclusion, Acknowledge, References, Tables, Figures, Figure caption (Rowley & Stack 2004). Another author stated the structural framework of narrative review is: Introduction, Literature search, Central body or Discussion, Conclusions and Abstract (Masters et al. 2010). There is no consensus of structure of narrative review (Baker 2004).

Systematic Review

Systematic reviews use a more rigorous and well-defined approach to reviewing the literature in a specific subject area. Systematic reviews are used to answer well-focused questions about clinical practice (Cronin et al. 2008). It is a summary of the medical literature that uses explicit and reproducible methods to systematically search, critically appraise, and synthesize on a specific issue (Gopalakrishnan & Ganeshkumar 2013). High level overview of
primary research on a focused question that identifies, selects, synthesizes and appraises all high quality research evidence relevant to that question (Kysh 2013). A systematic review can be said as “a review of the evidence on a clearly formulated question that uses systematic and explicit methods to identify, select and critically appraise relevant primary research, and to extract and analyze data from the studies that are included in the review. Systematic reviews, as the name implies, typically involve a detailed and comprehensive plan and search strategy derived a priori, with the goal of reducing bias by identifying, appraising, and synthesizing all relevant studies on a particular topic (Uman 2011). It appraises and synthesizes research evidence from individual studies based on a strict protocol and consequently makes a valuable source of information. A systematic review uses a process to identify comprehensively all studies for a specific focused question (drawn from research and other sources), appraise the methods of the studies, summarize the results, present key findings, identify reasons for different results across studies, and cite limitations of current knowledge (Garg et al. 2008).

The systematic review proceeds with an explicit and reproducible protocol to locate and evaluate the available data. The collection, abstraction, and compilation of the data follow a more rigorous and prospectively defined objective process (Chiappelli et al. 2005). Systematic reviews are literature reviews that adhere closely to a set of scientific methods that explicitly aim to limit systematic error (bias), mainly by attempting to identify, appraise and synthesize all relevant studies (of whatever design) in order to answer a particular question (or set of questions). Reviewing research systematically involves three key activities: identifying and describing the relevant research (‘mapping’ the research), critically appraising research reports in a systematic manner, and bringing together the findings into a coherent statement, known as synthesis (Gough et al. 2012). According to another author, systemic review is an exhaustive review of the literature addressing a clearly defined question, which uses a systematic and explicit methodology to identify, select and critically evaluate all the relevant studies, and collect and analyse the data emerging from the studies included in it (Cronin et al. 2008).

Organization involved with Systematic Review

Cochrane, previously known as the Cochrane Collaboration, is an independent, non-profit, non-governmental organization organize medical research information in a systematic way to facilitate the choices that health professionals, patients, policy makers and others face in health interventions according to the principles of evidence-based medicine. The Campbell Collaboration describes itself as a "non-profit organization that aims to help people make well-informed decisions by preparing, maintaining and disseminating systematic reviews in education, crime and justice, social welfare and international development. It is a sister initiative of the Cochrane Collaboration. In recent years, with the establishment of these organizations there has been a noticeable shift towards the inclusion of a wider range of study designs incorporating quantitative, qualitative and mixed method studies (Grant & Booth 2009).

Steps or Stages for conducting Systematic Review

A systematic review contains just like other original article like: Introduction, Methodology, Result, Discussion, Acknowledgement and References (Wardlaw 2010). Introduction segment contains rational of the review, statement of problem, background literature and objective of the review. Methodology includes: search strategy, procedure for identification and collection of articles. Result section give numbers of studies screened, assessed for eligibility, and
included in the review, with reasons for exclusions at each stage (Richards & Polk 2014). A flow diagram is also given in result section so that reader can easily grave the whole process at a glance (see Figure 1). According to Lindsay and Uman, there are 08 steps of systemic review and these are: formulate a review question, define inclusion and exclusion criteria, develop search strategies and locate studies, select studies, extract data, assess study quality, analyse and interpret results and finally disseminating the findings (Uman 2011).

**Figure 1. PRISMA flow diagram of the steps of systemic review**

- IDENTIFICATION
  - Records identified through database searching (n=)
  - Additional records identified through other sources (n=)

- SCREENING
  - Records after duplicate removed (n=)
  - Records screened (n=) → Records excluded (n=)

- ELIGIBILITY
  - Full articles assessed for eligibility (n=) → Full text article excluded with reasons (n=)

- INCLUDED
  - Studies included in qualitative synthesis (n=)
  - Studies included in quantities synthesis (meta-analysis) (n=)
There are variations among journal policy regarding registration prior systemic review process. BioMed Central supports the prospective registration of systemic reviews and encourages authors to register their systematic reviews in a suitable registry (such as PROSPERO). During review process, a reviewer needs to present the precise criteria used to: formulate the research question, set inclusion and exclusion criteria, select and access the literature, assess the literature quality that included for review, analyse synthesize and disseminate the findings (Cronin et al. 2008). The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist of systemic review includes 27 items and these are: Title, Structured summary (context, objective, data source, study selection, data extraction, data synthesis, conclusion), Rationale, Objectives, Methods (Protocol and registration, Eligibility criteria, Information sources, Search, Study selection, Data collection process, Data items, Risk of bias in individual studies, Summary measures, Planned method of analysis, Risk of bias across studies, Additional analysis), Result (Study selection, study characteristics, Risk of bias in studies, Results of individual studies, Synthesis of result, Risk bias across studies), Discussion (Summary of evidence, Limitation, Conclusion), Funding (Liberati et al. 2009).

**Search Strategies**

Researchers now a days search the literature by computer and electronic database. The type of data base depends upon which type of issue is going to be searched. In case of medical science usually researcher uses electronic data base like: EMBASE, MEDLINE, PUBMED, CINAHL, PsychINFO, Cochrane library (Jesson & Lacey 2006; Baker 2004). Researcher may fix up the period of published article prior searching input in database. As for example if researcher wants to review 05 year or 10 years’ studies, he should select the period option first. The most common method of identifying literature is by keyword searches (Cronin et al. 2008). It is a good idea to consider alternative keywords with similar meanings that might elicit further information (for example, if you are undertaking a review in an aspect of pressure ulcers, you would need to include terms, such as ‘pressure sores’ and ‘decubitus ulcers’, to access older material) Another strategy is combining keywords(Cronin et al. 2008). To help with these combinations many databases use commands called ‘Boolean operators’. The most common Boolean operators are ‘AND’, ‘OR’ and ‘NOT’ (Cronin et al. 2008). George Boole and John Venn were 19th century mathematicians. George Boole developed what became known as Boolean algebra or Boolean logic. Boole's work became important when applied to electronic logic circuits in the late 1930s. Boolean operator words used as conjunction to combine or exclude keywords in a search, resulting more focused and productive results (Alliant Libraries 2013).

**Scoping Review**

It commonly refers to ‘mapping,’ a process of summarizing a range of evidence in order to convey the breadth and depth of a field (Levac et al. 2010). Definitions of scoping studies are few and far between. At a general level, scoping studies might ‘aim to map rapidly the key concepts underpinning a research area and the main sources and types of evidence available, and can be undertaken as stand-alone projects in their own right, especially where an area is complex or has not been reviewed comprehensively before’ (Pham et al. 2014). It aims to map the existing literature in a field of interest in terms of the volume, nature, and characteristics of the primary research (Arksey & O’Malley 2005). A scoping review of a body of literature can
be of particular use when the topic has not yet been extensively reviewed or is of a complex or heterogeneous nature (Pham et al. 2014). It’s a type of review technique to map relevant literature in the field of interest and likely to address broader topic where many different study design may be included (Arksey & O’Malley 2005).

Scoping reviews share several the same processes as systematic reviews as they both use rigorous and transparent methods to comprehensively identify and analyse all the relevant literature pertaining to a research question. The key differences between the two review methods can be attributed to their differing purposes and aims. First, the purpose of a scoping review is to map the body of literature on a topic area (Arksey & O’Malley 2005), whereas the purpose of a systematic review is to sum up the best available research on a specific question (Petticrew & Roberts 2006). Subsequently, a scoping review seeks to present an overview of a potentially large and diverse body of literature pertaining to a broad topic, whereas a systematic review attempts to collate empirical evidence from a relatively smaller number of studies pertaining to a focused research question (Arksey & O’Malley 2005; O’Connor et al. 2008). Second, scoping reviews generally include a greater range of study designs and methodologies than systematic reviews addressing the effectiveness of interventions, which often focus on randomized controlled trials (Arksey & O’Malley 2005). Third, scoping reviews aim to provide a descriptive overview of the reviewed material without critically appraising individual studies or synthesizing evidence from different studies (Levac et al. 2010; Arksey & O’Malley 2005). In contrast, systematic reviews aim to provide a synthesis of evidence from studies assessed for risk of bias (O’Connor et al. 2008).

So, what might we consider to be the main differences between a systematic review and a scoping study? First, a systematic review might typically focus on a well-defined question where appropriate study designs can be identified in advance, whilst a scoping study tends to address broader topics where many different study designs might be applicable. Second, the systematic review aims to provide answers to questions from a relatively narrow range of quality assessed studies, whilst a scoping study is less likely to seek to address very specific research questions nor, consequently, to assess the quality of included studies (Arksey & O’Malley 2005). Scoping studies differ from systematic reviews because authors do not typically assess the quality of included studies. Scoping studies also differ from narrative or literature reviews in that the scoping process requires analytical reinterpretation of the literature (Levac et al. 2010). While in a scoping review the goal is to determine what kind of evidence (quantitative and/or qualitative) is available on the topic and to represent this evidence by mapping or charting the data, comprehensive systematic reviews are designed to answer a series of related but still very specific questions (Anon 2015). Arksey and O’Malley proposed an iterative six-stage process: (1) identifying the research question, (2) identifying relevant studies, (3) study selection, (4) charting the data, (5) collating, summarizing and reporting the results, and (6) an consultation exercise (Arksey & O’Malley 2005). Scoping reviews are a relatively new approach to reviewing the literature, which has increased in popularity in recent years. As the purpose, methodological process, terminology, and reporting of scoping reviews have been highly variable, there is a need for their methodological standardization to maximize the utility and relevance of their findings. We agree that the establishment of a common definition and purpose for scoping reviews is an important step toward enhancing the consistency with which they are conducted (Levac et al. 2010); this would provide a common platform from which debates regarding the methodology can ensue, and the basis for future methodological frameworks and reporting guidelines (Pham et al. 2014).
Meta-Analysis

The first applications of meta-analysis were made more than 30 years ago in the psychiatric literature (Russo & Carolina 2007). Following a systematic review, data from individual studies may be pooled quantitatively and reanalysed using established statistical methods. This technique is called meta-analysis (Akobeng 2005). A meta-analysis goes beyond a literature review, in which the results of the various studies are discussed, compared and perhaps tabulated, since it synthesizes the results of the individual studies into a new result (Berman & Parker 2002).

Conclusion

Though there is lots of review process or types, the most common types are Narrative, Systemic, Scoping and Meta-analysis. Narrative is a review for understanding broader spectrum having no specific methodology or narrow question. Scoping review is a new terminology having some form of methodological process but not like systemic review. Systemic review is the quantitative review and having a strict methodology to extract the specific answer. Meta-analysis is a form of evidence extractor among all review process and having specific statistical measures to express the result of review.
Competing Interests

The authors declared that there are no potential competing interests with respect to the research, authorship and/or publication of this paper.

Acknowledgements:

The Authors thank Sadeka Hossain Tazin for her extra ordinary support.

References


Kysh, L., (2013). Difference between a systematic review and a literature review. *Medical Library Group of Southern California & Arizona (MLGSCA) and the Northern California and Nevada Medical Library Group (NCNMLG) Joint Meeting*.


