Review Article

Conducting a Literature Review in Health Research: Basics of the Approach, Typology and Methodology

Ahmed S[1], Vaska M[2], Turin TC[1,3,4]

[1]Department of Family Medicine, University of Calgary, Calgary, Alberta, Canada, [2]Knowledge Resource Service, Alberta Health Services, Calgary, Alberta, Canada, [3]Department of Community Health Sciences, University of Calgary, Calgary, Alberta, Canada, [4]Department of Epidemiology & Research, National Heart Foundation Hospital & Research Institute, Dhaka, Bangladesh.

Abstract

Background: Literature reviews play a significant role in healthcare practice. There are different types of reviews available depending on the nature of the research question and the extent of reviewing that is conducted. In this article, we have summarized the major types of literature reviews, their strength and weakness, and provide representative examples.

Methods: We have examined the different types of common reviews that have been used in the health research literature. We collected the information on these review types and have summarized them with providing corresponding examples.

Results: We have discussed the major types of reviews: literature review, critical review, scoping review, systematic review, meta-analysis, qualitative systematic review, realist review, and review of reviews. We have mentioned the usability, strengths and weaknesses, utilizing the Search, Appraisal, Synthesis, Analysis (SALSA) framework, and have provided corresponding examples for each of these types of reviews in different tables.

Conclusion: This article is a summary of different types of reviews and their implication in practice. This paper is thus intended for beginners who want to know about literature reviews. *(JNHFB 2016; 5 : 44-51)*

Introduction

Literature reviews are becoming more and more important and favoured in the evidencebased practice (EBP) of health and social care[1]. Healthcare professionals require updated information regarding research and development to inform their practice. However, with such large amounts of materials being published, it is impossible for anyone to cover every single piece of information or evidence on any given topic. A literature review thus gives audiences the opportunity to have summarized information on any topic without reading all of the evidence published in that specific area. Although the culture of the review article began more than two centuries ago, it wasn't until the 20th century that an explicit method was devised to carry out review research[2]. In addition, the emergence of EBP instigated more rigorous and quality controlled approaches of review articles so that the synthesized summary results could be utilized with confidence[3].

Reasons for undertaking a literature review

In general, the main goal of conducting a literature review is to summarize the existing knowledge and identify the potential gaps for future research[4]. However, a literature review can be undertaken for other reasons such as generating and refining a research idea, creating awareness of the current state of knowledge in a subject area, determining how research fits into the wider context, etc. The bottom line is that before beginning a review, researchers should be clear about the purpose of doing a review as well as the expected outcome(s). The objective behind the initiation of the review directs the type of review that needs to be chosen[5].

In this article we describe the elements that we need to consider when we envisage conducting a review. We then summarize the major types of reviews that are widely used by the scientific community. We also discuss the objectives that these reviews serve and summarize the strengths and weaknesses of each type.

Planning a review

Based on the type, a literature review can range from "just narrative write-up" to "very organized". A review is usually structured according to the following steps[6]:

Corresponding Author
Tanvir C Turin MBBS MS PhD
Department of Family Medicine,
Room G012F, Health Sciences Center,
3330 Hospital Drive Northwest, Calgary, Alberta T2N 4N1, Canada.

1. Frame review question
2. Identify relevant work
3. Assess study quality
4. Summarize evidence
5. Interpret findings

These five steps are elaborated upon in Figure – 1.

Figure-1: Steps of conducting a systematic review.

Frame review question:

- Specify the problem to be addressed by the review.
- Keep this statement as clear, unambiguous and structured as possible.

Identify relevant work :

- Sources of literature, search terms and keywords etc.
- Study selection method, Inclusion/exclusion criteria

Assess study quality :

- Select a quality assessment method based on the type of source literature.

Summarize evidence :

- Summarized information can be presented in tabular format, meta-analysis etc.

Interpret findings :

- May cover all or multiples of these: heterogeneity of the studies, strengths and weaknesses, study quality, future recommendations, etc.

Based on the type of the review, one or more of the above-mentioned step(s) can be altered or removed. In general, Frame review question, Summarize evidence and Interpret findings depends on the author's choice or journal requirements. However, according to the nature of the reviews, study identification and quality assessment techniques vary. For example, if a review aims to catalogue quantitative studies, PICOS framework would be used for study selection, whereas if a review seeks to summarize qualitative studies, then the appropriate tool would be SPIDER framework[7]. These two tools are described in Box-1 and 2.

Box-1: Elaboration and explanation of PICOS with an example of a systematic review.

Elaboration of PICOS:
P: Population
I: Intervention
C: Comparison
O: Outcome
S: Study Design

Example: Virtual Reality in Stroke Rehabilitation: A Systematic Review of its Effectiveness for Upper Limb Motor Recovery (PMID: 17517575).

P: Patients with post-stroke hemiplegia
I: Immersive or non-immersive virtual reality
C: Conventional therapy or no therapy
O: Differences between groups
S: Experimental studies including randomized controlled trials (RCTs).

Box-2: Elaboration and explanation of SPIDER with an example of qualitative systematic review.

Elaboration of SPIDER:
S: Sample
PI: Phenomenon of Interest
D: Design
E: Evaluation
R: Research type

Example: Smoke-free homes: what are the barriers, motivators and enablers? A qualitative systematic review and thematic synthesis (PMID: 26988351)

S: Families, households and vulnerable populations
PI: Barriers, motivators and enablers of smoke-free home
D: Any qualitative data collection method (interview, focus group etc.)
E: Critical Appraisal Skills Program (CASP) Qualitative Checklist
R: Qualitative

For quality assessment, there are different types of tools available according to the source literature[8]. For example, the Consolidated for Reporting Qualitative Research (COREQ) or the Standards for Reporting Qualitative Research (SRQR) is recognized for quality assessment of the qualitative studies[9, 10] while the Effective Public Health Practice Project (EPHPP) is an example of a quantitative

study quality assessment tool[11]. The Equator Network (http://www.equator-network.org/reporting-guidelines/) provides a comprehensive list of reporting and quality assessment tools for different types of studies.

Major types of reviews

Review articles are of different types based on the purpose of the review and the research question to address[12]. In this brief article, we'll cover 8 major types of literature reviews. These are: literature review, critical review, scoping review, systematic review, meta-analysis, qualitative systematic review, realist review, and review of reviews. The subsequent paragraphs will briefly mention these different types of review articles. Major characteristics, methods of SALSA, strengths and weaknesses, and examples of each of the different types of reviews are given in Table 1-4.

Table-1: Major types of reviews in the health research.

Type	Description
Literature review	• Provides examination of current or recent literature to answer a specific research question or to describe a broad topic.
	• Involves some processes of inclusion criteria for the literature but a formal systematic literature search is not mandatory.
	• Involves synthesizing the selected literature in a textual, tabular or graphic format.
Critical review	• Requires that the reviewer understand the material, and know how to analyze and evaluate that material using appropriate criteria (strengths, weaknesses, and validity).
	• Reviewer will also present information that will allow the reader to make a value judgment about the article.
Scoping review	• Maps existing literature or evidence base on a particular topic.
	• Identify the nature and extent of evidences available.
	• Also used to identify parameters and gaps in a body of literature.
Systematic review	• Use explicit method to identify reliable information as much as possible regarding a research question.
	• Follows a formal process for appraising literature and minimizing bias.
	• Follows a standard scientific protocol; this type of review is considered original research.
Meta-analysis	• This is a technique that is commonly used in systematic reviews to statistically combine the results of quantitative studies to provide a more precise pooled effect of the results.
	• Also gives the reader an understanding of differences (heterogeneity) in the results across thestudies.
	• Requires all the included studies to be sufficiently similar.
	• A comprehensive meta-analysis will give the reader an idea if new studies are needed to further investigate an issue.
Qualitative Systematic Review	• Looks for 'themes' or 'constructs' that lie in or across individual systematic review qualitative studies.
	• Interpretative in broadening understanding of a particular phenomenon.
Realist review	• A theory-driven, qualitative and mixed-method approach to a systematic review as an alternative to (or to extend and supplement) conventional Cochrane-style reviews.
	• A relatively new approach to synthesize research that seeks an explanatory focus.
	• Realist reviews uncover the mechanism(s) of how and why complex interventions thrive or fail, in any given particular setting.
Review of reviews	• Refers to a review compiling evidence from multiple reviews into one accessible and usable document.
	• Useful for any broad condition or problem where multiple and contradicting or competing interventions are present in the form of systematic reviews.

Table – 2: Major types of reviews described using the Search, Appraisal, Synthesis and Analysis (SALSA) framework

Type	Search	Appraisal	Synthesis	Analysis
Literature review	• May or may not include comprehensive searching	• May or may not include quality assessment	• Typically narrative	• Analysis may be chronological, conceptual, thematic, etc.
Critical review	• Seeks to identify most significant items in the field	• No formal quality assessment	• Typically narrative	• Seeks to identify conceptual contribution to embody existing conjecture or derive new proposition
Scoping review	• Completeness of searching determined by time/scope constraints	• No formal quality assessment	• Typically tabular with some narrative commentary	• Characterizes quantity and quality of literature, perhaps by study design and other key features deemed important by the researcher
Systematic review	• Exhaustive and comprehensive searching	• Quality assessment is common and may determine inclusion/exclusion criteria	• Typically narrative with tabular accompaniment	• What is known • Recommendations for practice • What remains unknown; uncertainty around findings, recommendations for future research
Meta-analysis	• Comprehensive searching	• Quality assessment and sensitivity analysis	• Graphical and tabular with narrative commentary	• Statistical analysis of measures of effect
Qualitative systematic review	• May employ selective or purposive sampling	• Quality assessment typically used to mediate messages not for inclusion/exclusion	• Qualitative, narrative	• Thematic synthesis and analysis
Realist review	• Formal systematic search	• Assessment of relevance and rigor	• Typically tabular with some narrative commentary	• Identify the attributes of "what works, how, for whom, in what circumstances and to what extent" for any intervention
Review of reviews	• Identification of component reviews, but not primary studies	• Quality assessment of studies within component reviews	• Graphical and tabular with narrative commentary	• What is known; recommendations for practice • What remains unknown; recommendations for future research

NB. The details of The Search, Appraisal, Synthesis and Analysis (SALSA) framework presented with permission from John Wiley and Sons from the following reference: Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. Health Information & Libraries Journal. 2009;26(2):91-108.

1. Literature review

The term "literature review" is broad in scope and difficult to isolate from other types of review articles. However, it is a general summary of published literature on any topic without requiring a systematic search for literature, and a rigorous inclusion/exclusion procedure. A literature review provides a good source of summarized knowledge, but due to the lack of methodological rigour, it can be biased by reflecting the author's own point of view[12].

2. Critical review

A critical review is not just a summary of the literature; rather, it demonstrates extensive research and quality evaluation. Authors of critical reviews do not need to mention every single element from the source literature, but instead extract the most important ideas from the sources cited[13]. Generally, the findings of critical reviews are typically hypotheses or models.

3. Scoping review

A scoping review focuses on identifying the nature and extent of literature available on any specific topic. It is similar to a systematic review with the exception that it provides a quality assessment of primary literature. This type of review unveils the scope of future research and may lead to conducting a systematic review on the topic to gain more specific knowledge[14].

4. Systematic review

A systematic review follows an arduous protocol (which may or may not be peer-reviewed), rendering it replicable by any other researcher[15]. Therefore, systematic reviews are considered to be key elements of evidence-based healthcare information and are thus regarded as the strongest form of medical evidence. The methodology of a systematic review is driven by a framework called PICOS (described in Box 1). PICOS tools are designed to capture quantitative studies and, with the advent of qualitative research in healthcare, a different genre of review has been developed, namely the qualitative systematic review.

5. Meta-analysis

A Meta-analysis is not actually a standalone type of review article, but is rather commonly used in conjunction with systematic review. A meta-analysis is basically a statistical method of aggregating sufficiently similar articles to compare the outcomes from different sources. Metaanalytic compilations are good resources for decision makers, as they reduce the time required to review scattered individual studies[16].

6. Qualitative systematic review

Qualitative studies have gained considerable importance in current medical and social science literature. A qualitative systematic review is an approach used to integrate and compare the findings from qualitative literature on a specific topic[17].

7. Realist review

A realist review arose from the need to deal with complex interventions and heterogeneity of study design, study settings, context, outcome measures etc[18]. Systematic reviews are ideal for simple and single interventions, however, in reality, healthcare professionals and policy makers usually deal with multiple interventions in complex scenarios. Instead of a straightforward answer to a question, a realist review will provide a rich, detailed and practical understanding of complex social interventions.

8. Review of reviews

A review of reviews generally compiles evidence from multiple reviews into one single document. In many disciplines, decision makers are overwhelmed with numerous systematic reviews of varying quality and scope. This situation has triggered the need for a systematic review of reviews where the quality of every review is assessed and the results are compared. Therefore, the decision maker is better able to understand the interventions identified in different reviews[19].

Table – 3: Major types of reviews: their strengths and weaknesses

Type	Strength	Weakness
Literature review	▪ Identifies what has been accomplished previously	▪ Lacks an explicit intent to maximize scope or analyse data collected
Critical review	▪ A good source for a quick overview stock of knowledge on any topic ▪ Often attempts to resolve competing schools of thoughts	▪ Lack of a systematic search can create bias in the aggregate of literature for synthesis.

Scoping review	▪ Inform researchers, policymakers, or stakeholders about the extent of work that has already been done ▪ Identify any potential gaps in the research domain ▪ Informs as to whether a full systematic review is needed	▪ Lack of quality assessment risks the inclusion of studies based on their existence rather than their intrinsic quality
Systematic review	▪ Seek to draw together all known knowledge (quantitative, qualitative and mixed-method) on a topic	▪ As with any subjective review, there is the problem of selection bias, where contradictory research is omitted
Meta-analysis	▪ Assimilation of conclusive and statistically significant studies create a strong evidence base for practice ▪ Overcomes small sample sizes of individual studies. ▪ Increases precision in estimating effects.	▪ Inappropriateness of combining studies not similar enough weakens the finding
Qualitative systematic review	▪ Compliments research evidence with two essential components of evidence practice: user-reported and practitioner-observed considerations	▪ The method is still in infancy and there are debates about appropriateness of the methodology
Realist review	▪ Systematic involvement of papers concerning stakeholders, which ensures that relevance is maintained ▪ Focus on explanation rather than judgement	▪ Because of limited description of context and mechanism inthe studies, context-mechanism-outcome configurations need to be constructed through argumentation analysis, which is complicated and time consuming
Review of reviews	▪ Allows the reader a quick overview (and an exhaustive list) of reviews relevant to thedecision at hand	▪ A useful review of reviews requires pre existence of the narrower component reviews

Table – 4: Examples of each type of major review and objective of those studies.

Types	PMID	Author	Title	Objective of this paper
Literature review	25515274	Azad MC et al.	Sleep Disturbances among Medical Students: A Global Perspective	This review summarized literature on sleep problems among undergraduate medical students around the world.
Critical review	18031221	Kovats RS and Hajat S	Heat stress and public health: a critical review	This article reviewed epidemiological information on the impacts of heat waves and hot weather. It also described the implications of this research for public health.
Scoping review	26364053	Ahmed S et al.	Barriers to Access of Primary Healthcare by Immigrant Populations in Canada: A Literature Review.	This scoping review of the literature was conducted to map the existing literature about the barriers to access primary healthcare by immigrants in Canada. It also determined the extent and types of evidence available on this topic and to identified the gaps in the literature for future research.
Systematic review	23776544	Braun R et al.	Community health workers and mobile technology: a systematic review of the literature.	This review systematically reviewed the literature on the use of mobile technology to help improve the services delivered by community health workers. It also described the health of the communities they serve.
Meta-analysis	18786971	Sofi F et al.	Adherence to Mediterranean diet and health status: meta-analysis	This meta-analysis reviewed prospective cohort studies in primary care setting that analysed the relation between Mediterranean diet, mortality, and incidence of chronic diseases.
Qualitative systematic review	26143357	Mikkonen K et al.	Culturally and linguistically diverse healthcare students' experiences of learning in a clinical environment: A systematic review of qualitative studies.	This systematic review analyzed qualitative studies that were aimed to identify clinical learning experience of culturally and linguistically diverse healthcare students.
Realist review	25535014	Paternotte E et al.	Factors influencing intercultural doctor-patient communication: a realist review.	This study provided an overview of how intercultural communication between doctors and patients works.
Review of reviews	24165786	Mickan S et al.	Evidence of effectiveness of health care professionals using handheld computers: a scoping review of systematic reviews.	This study reviewed the systematic reviews about the effectiveness of handheld computers in clinical work by healthcare professionals.

Closing Remarks

Depending on the needs and approaches, different genres of reviews have arisen. The typology of reviews presented in this article is a brief description of major types of reviews. With increasing focus on synthesizing evidence through a systematic review for generating direction and recommendations for best practice, healthcare researchers need to have a clear understanding of the steps required for conducting appropriate reviews. In this manuscript we have provided a brief step-by-step explanation of the basic principles and typology of literature reviews

Considerations for practice

1. Eight major types of review articles are summarized with descriptions, strengths and weaknesses, SALSA framework, and representative examples.

2. This article will provide knowledge to healthcare professionals who are interested in learning about literature reviews.

References:

1. Bellamy JL, Bledsoe SE, Traube DE. The current state of evidence-based practice in social work: A review of the literature and qualitative analysis of expert interviews. Journal of Evidence-Based Social Work. 2006;3(1):23-48.
2. Mulrow CD. The medical review article: state of the science. Annals of Internal Medicine. 1987;106(3):485-8.
3. Brettle A. Systematic reviews and evidence based library and information practice. Evidence Based Library and Information Practice. 2009;4(1):43-50.
4. Knopf JW. Doing a literature review. PS: Political Science & Politics. 2006;39(01):127-32.
5. Institute JB. Joanna Briggs Institute reviewers' manual: 2011 edition: Joanna Briggs Institute; 2011.
6. Khan KS, Kunz R, Kleijnen J, Antes G. Five steps to conducting a systematic review. Journal of the Royal Society of Medicine. 2003;96(3):118-21.
7. Cooke A, Smith D, Booth A. Beyond PICO the SPIDER tool for qualitative evidence synthesis. Qualitative Health Research. 2012;22(10):1435-43.
8. Vandenbroucke JP. STREGA, STROBE, STARD, SQUIRE, MOOSE, PRISMA, GNOSIS, TREND, ORION, COREQ, QUOROM, REMARK... and CONSORT: for whom does the guideline toll? Journal of clinical epidemiology. 2009;62(6):594.
9. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Academic Medicine. 2014;89(9): 1245-51.
10. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. International Journal for Quality in Health Care. 2007;19(6):349.
11. Thomas H. Quality assessment tool for quantitative studies. Effective Public Health Practice Project McMaster University, Toronto. 2003.
12. Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. Health Information & Libraries Journal. 2009;26(2):91-108.
13. Jesson JK, Lacey FM. How to do (or not to do) a critical literature review. Pharmacy Education. 2006;6(2):139-48.
14. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. International journal of social research methodology. 2005;8(1):19-32.
15. Kitchenham B. Procedures for performing systematic reviews. Keele, UK, Keele University. 2004;33(2004):1-26.
16. Garg AX, Hackam D, Tonelli M. Systematic review and meta-analysis: when one study is just not enough. Clinical Journal of the American Society of Nephrology. 2008;3(1):253-60.
17. Jones ML. Application of systematic review methods to qualitative research: practical issues. Journal of advanced nursing. 2004;48(3):271-8.
18. Pawson R, Greenhalgh T, Harvey G, Walshe K. Realist review–a new method of systematic review designed for complex policy interventions. Journal of health services research & policy. 2005;10(suppl 1):21-34.
19. Smith V, Devane D, Begley CM, Clarke M. Methodology in conducting a systematic review of systematic reviews of healthcare interventions. BMC medical research methodology. 2011;11(1):1.