

3-14-2016

## Systematic Literature Reviews: A Primer

Amy Van Epps  
*Harvard University*, amy\_vanepps@harvard.edu

Margaret Phillips  
*Purdue University*, phill201@purdue.edu

Follow this and additional works at: [https://docs.lib.purdue.edu/lib\\_fscm](https://docs.lib.purdue.edu/lib_fscm)



Part of the [Information Literacy Commons](#), and the [Scholarly Publishing Commons](#)

---

Van Epps, Amy and Phillips, Margaret, "Systematic Literature Reviews: A Primer" (2016). *Libraries Faculty and Staff Creative Materials*. Paper 29.  
[https://docs.lib.purdue.edu/lib\\_fscm/29](https://docs.lib.purdue.edu/lib_fscm/29)

This document has been made available through Purdue e-Pubs, a service of the Purdue University Libraries.  
Please contact [epubs@purdue.edu](mailto:epubs@purdue.edu) for additional information.

## Systematic Literature Reviews: A primer

A couple of key points about systematic literature reviews (SLRs):

1. A “systematic literature review” is a **research method**, analogous to other research methods used to gather data (e.g. surveys, interviews, observations, experiments, etc). In the case of SLRs the “data” to be analyzed is the literature collected through the search process.
2. SLRs are typically **done as group** research projects, not individual projects. This is in large part due to the requirements of the methods and the need for agreement on inclusion or exclusion of papers in the selection of studies steps.
3. In addition, **typically a librarian, with their extensive knowledge of literature databases and expertise with structured searching techniques, is part of the team**. If not for the whole project, then minimally for the selection of databases and construction of the search strings.

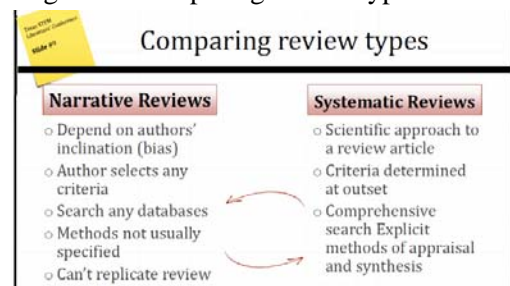
A couple of comparative looks at systematic reviews and narrative literature reviews.

Table 1: Characteristics of narrative and systematic reviews

	Systematic Review	Narrative Review
<b>Research Question</b>	Strictly formulated	Broadly formulated
<b>Methodology</b>	Clearly defined	Not or insufficiently defined
<b>Search strategy</b>	Clearly defined	Not described
<b>Selection of studies</b>	Clearly defined	Not described
<b>Ranking of studies</b>	By levels of evidence	Not performed
<b>Analysis of studies</b>	Clearly described	Not described
<b>Interpretation of results</b>	Objective	Subjective

Note: Table reproduced from Impellizzeri & Bizzini (2012), p. 495

Figure 1: Comparing review types



Note: Reproduced from FIE 2016 special session slides by Margaret Foster, TAMU.

**FIRST**, a SLR is a research project and as such needs to begin with a **clearly defined research question** that can be answered by analysis of the data (“literature”) collected in the search process.

**SECOND**, form the research team with diverse and appropriate expertise for the topic and process.

**THIRD**, like empirical research the **data gathering methods will be clearly defined** so the research can be replicated. This means:

- clear articulation of what databases were used for searching and why,
- what keywords were used, how those map to subject headings/descriptors/identifiers/thesauri terms within the different databases
- other limiting factors that were employed in searching.
  - e.g. language of publication, geographical limitations, date ranges

This also means that you don’t get to include articles just because you like them or happen to know of them and think they fit. The literature included is limited to that which is discovered by whatever search method you articulate. Ideally the search method will grab all of the articles you already know and would expect to be in the papers considered. A browsing process is admissible, but what titles are included and why, and what criteria were used to identify papers all needs to be articulated along with the search criteria. Particular care should be paid in designing and conducting searches, because once the data is collected you do not get to go back and add in articles without starting the entire process over.

**FOURTH**, ALL of the literature that fits the search criteria is gathered, ideally into a citation management tool (e.g. Endnote, Mendeley, Zotero). NO evaluation is done during the gathering stage. An initial winnowing of papers is done by removing duplicate records.



**FIFTH**, selecting the articles follows, rigidly, whatever criteria were established prior to beginning to gather literature. This is done in two stages, first by evaluating abstracts, and then the full papers.

*Abstract evaluation:* read the abstracts and determine if a paper is to be kept in the collection or not. If the researcher can't determine the fit based on the criteria at this stage, the article is kept for the full paper review stage. There needs to be agreement across the research group about keeping or removing a paper, although the reason for removing doesn't have to agree, as long as everyone agrees the paper doesn't fit one or more of the criteria.

**If your group is only two people, both will review everything, if you have a larger group, you may divide things up, but each paper should be evaluated by at least two researchers.**

*Full paper review:* read the full paper, looking for the particular pieces of information that respond to your criteria. Again, **only** papers that meet the pre-established criteria are kept for analysis.

**SIXTH**, with the final selection completed, you have the set of data you will use for your analysis. This can be a quantitative meta-analysis, or a qualitative meta-synthesis. This step will also include articulation of a method for the analysis, e.g. thematic analysis for a qualitative meta-synthesis.

**SEVENTH**, the final step is to write up the study, with all the expected portions of a research study. Particular attention needs to be paid to fully articulating the methods section of the systematic literature review. Clear presentation of the process followed, including the flowchart of data gathered and how filtered at different stages. See Figure 1.

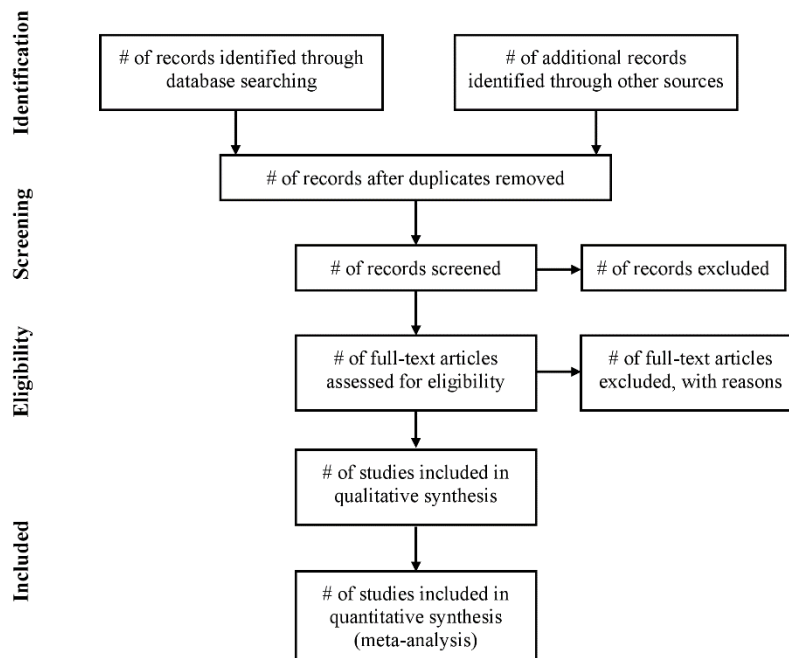


Figure 1: Flow of Information through the different stages of a systematic review. From Mohler, et al (2009) PLoS Med.

**Additional resources:**

Impellizzeri, F.M., & Bizzini, M. (2012). Systematic Literature Review and Meta-Analysis: A Primer. *Int J Sports Phys Ther.* 7(5): 493–503  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3474302/>

Mohr D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009) Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med* 6(7): e1000097. doi:[10.1371/journal.pmed.1000097](https://doi.org/10.1371/journal.pmed.1000097)

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) website. <http://www.prisma-statement.org/>

Standards for Systematic Reviews - <http://iom.nationalacademies.org/~media/Files/Report%20Files/2011/Finding-What-Works-in-Health-Care-Standards-for-Systematic-Reviews/Standards%20for%20Systematic%20Review%202010%20Insert.pdf>

