

Writing a Systematic Literature Review

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What is a Systematic Literature Review?

A systematic literature review is a summary, analysis, and evaluation of existing research on a well-formulated and specific question. This type of review is frequently employed in medical and healthcare research and entails the systematic search, appraisal, and synthesis of research evidence.

The purpose of a systematic literature review is to provide a thorough analysis of research on a specific topic, highlight gaps in existing knowledge, and direct future research or practice. Systematic literature reviews offer researchers and practitioners a convenient way to stay informed about a great number of studies being published, especially in health sciences. Systematic reviews allow clinicians and researchers to determine effective interventions, establish clinical practice guidelines, inform policy decisions, and support further research. They are also often required by granting agencies to justify funding decisions.

How Does a Systematic Literature Review Differ from Other Review Types?

Unlike traditional narrative reviews, systematic reviews use a detailed and comprehensive search strategy to reduce bias, identify, appraise, and synthesize all relevant studies on a topic. This method produces a clear, quantitative estimate of the intervention effect, often using meta-analyses to combine data from multiple studies. The table below compares systematic literature reviews to traditional and meta-analysis literature reviews by discussing the objective, scope, and methodology of each type.

	Literature Review	Systematic Review	Meta-Analyses
Objective	Provides context or background knowledge on a broad topic	Evaluates the validity of relevant research findings and comprehensively synthesizes their characteristics and results	Estimates effects; combines research with statistical analysis of outcomes

	Literature Review	Systematic Review	Meta-Analyses
Scope	Less comprehensive but serves as an overview or introduction	Covers an extensive range of research on a specific topic, including all relevant studies that match predetermined criteria	Focuses on studies with comparable subject matter, standardizing data into comparable statistical formats
Methodology	Assesses existing research, theories, and evidence, followed by a critical discussion	Systematically searches, selects, and critically appraises studies based on specific criteria. The researcher integrates the results through narrative or qualitative techniques to provide a comprehensive summary, emphasizing the importance of qualitative synthesis.	Evaluates the effects for each study and integrates them to estimate the overall effects across all studies. Provides a thorough assessment, typically with confidence intervals, of the dependability and significance of findings.

Types of Systematic Literature Reviews

The table below describes various types of systematic literature reviews based on their purpose.

Type of Review	Purpose
Effectiveness review	assesses the extent to which a medical intervention or therapy achieves its intended effect
Diagnostic test accuracy review	summarizes the performance of diagnostic tests to determine their accuracy
Experiential (qualitative) review	analyzes human experiences in a cultural or social context
Costs/economics evaluation review	examines the cost implications of interventions or procedures
Etiology/risk review	determines the relationship between exposure and health outcomes
Psychometric review	assesses the quality of health measurement tools
Prevalence/incidence review	measures the proportion of a population with a disease and the frequency of its occurrence
Prognostic review	examines the course of a disease and its potential outcomes
Expert opinion/policy review	presents expert narrative or policy, often complementing, or substituting quantitative data

Type of Review	Purpose
Methodology systematic review	analyzes methodological issues in the design, conduct, or review of research studies

Steps for Writing a Systematic Literature Review

The steps below offer a method for writing a rigorous literature review.

1. Define a Focused Research Question

- Begin by formulating a research question that is specific in relation to your topic.
- Conduct a preliminary study of the existing literature to ensure that your question is both relevant and achievable.

2. Develop a Detailed Protocol

- Outline the objectives of your review.
- Provide a comprehensive description of the methods, including the search strategy, data extraction methods, inclusion/exclusion criteria, and analysis plan.

3. Conduct a Comprehensive Literature Search

- Create a search strategy that aligns with your research question. Clearly outline search terms, databases, and time frames.
- Use multiple databases like PubMed, Embase, or Ovid to ensure comprehensive coverage.

4. Screen and Select Studies

- Screen search results based on predefined inclusion and exclusion criteria.
- First, review titles and abstracts, then full texts of potentially relevant studies.

5. Extract Data

- Develop a data extraction form to systematically collect information from each included study.
- Include study design, participants, interventions, outcomes, and results.

6. Assess Study Quality

Use appropriate tools or checklists to evaluate the quality and risk of bias in individual studies (e.g., Cochrane's RoB2, SIGN RoB).

7. Synthesize the Evidence

- Gather and summarize key findings from each individual study.
- Depending on the nature of the studies, use either a statistical meta-analysis or a narrative synthesis to combine the evidence.

8. Interpret Results

- Analyze your findings in relation to the research question and objectives.
- Explain what the results mean for the field.
- Highlight any gaps or missing information that need further investigation.
- Recommend future research directions based on your findings.

9. Write the Review

Follow the structured format outlined in the section “Format of a Systematic Literature Review” on p. 4.

10. Revise and Edit

- Check for clarity, consistency, and accuracy.
- Seek feedback from colleagues or mentors and revise based on the feedback.

Format of a Systematic Literature Review

Following the structured approach presented below ensures clarity, rigor, and coherence in your systematic literature review, making it valuable for researchers and practitioners in your field.

Title: Clearly identify the report as a literature review.

Abstract: Provide a structured summary including background, objectives, data sources, eligibility criteria, methods for study appraisal and synthesis, results, limitations, conclusions, and implications.

Introduction: Clearly state the research question and objectives. Explain the rationale for the review in the context of existing knowledge, and explicitly outline the review objectives using the PICOS framework (Population, Intervention, Comparison, Outcome, Study Design).

Methods: Outline the search strategy, eligibility criteria, and assessment methods (risk of bias, quality appraisal). Specify the inclusion/exclusion criteria, sources searched (databases, registers, websites), search strategies (keywords, filters), selection process (screening, eligibility criteria), and methods used to assess risk of bias in the included studies.

Results: Systematically present the findings from included studies. Detail the search and selection process, describe the characteristics of included studies (study size, PICOS details), assess the risk of bias, and provide the results of individual studies (summary statistics, effect estimates).

Discussion: Interpret the results in the context of existing evidence, discuss the limitations of the evidence and review processes (including bias assessment), and outline implications for practice, policy, and future research. Consider the results in light of the research question, discuss implications for practice and policy, and suggest future research directions.

Conclusion: Summarize the key findings and implications, emphasizing the contribution to the field.

References: List all cited sources following appropriate citation guidelines.

Other Information: Provide registration details (name and number), protocol availability, amendments made during the review process, funding sources, competing interests, and availability of review materials (data, code).

By following these steps and understanding the differences between distinct types of reviews, you can ensure your systematic literature review is thorough, methodologically sound, and valuable to researchers and practitioners in your field.

Examples of a Systematic Literature Review

The best way to learn to write systematic literature reviews is to study good examples in your field with attention to how those are written. The articles on p. 5 provide examples of a systematic literature review in higher education and in public health. Click on the title of each article to view the example.

Example of a Systematic Literature Review in Public Health



International Journal of
***Environmental Research
and Public Health***

Tremmel, M., Gerdtham, U-G, Nilsson, P. M., Saha, S. (2017). [Economic burden of obesity: A systematic literature review](https://doi.org/10.3390/ijerph14040435). *International Journal of Environmental Research and Public Health* 14(4): 435. <https://doi.org/10.3390/ijerph14040435>

Example of a Systematic Literature Review in Higher Education



Kilgo, C.A., Ezell Sheets, J.K. & Pascarella, E.T. [The link between high-impact practices and student learning: some longitudinal evidence](https://doi.org/10.1007/s10734-014-9788-z). *Higher Education* 69, 509–525 (2015). <https://doi.org/10.1007/s10734-014-9788-z>

Additional Resources

The resources below offer more information on systematic literature reviews.

Chapman University Library. (2024). *Systematic reviews*. https://libguides.chapman.edu/systematic_reviews

Elsevier. (n.d.). *Systematic literature review or literature review*. <https://scientific-publishing.webshop.elsevier.com/research-process/systematic-literature-review-or-literature-review/>

Haidich, A. B. (2010). Meta-analysis in medical research. *Hippokratia*, 14(Suppl 1), 29–37.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3049418/#:~:text=Meta%2Danalyses%20are%20conducted%20to>

Kennedy, C. E., Turpin, R., et al. (2019). The Evidence Project risk of bias tool: Assessing study rigor for both randomized and non-randomized intervention studies. *Systematic Reviews*, 8(1), Article 3. <https://doi.org/10.1186/s13643-018-0925-0>

NIH Library. (n.d.). Systematic review protocols and protocol registries.
<https://www.nihlibrary.nih.gov/services/systematic-review-service/systematic-review-protocols-and-protocol-registries>

Uman, L. S. (2011). Information management for the busy practitioner: Systematic reviews and meta-analyses. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 20(1).
https://libguides.chapman.edu/systematic_reviews