

Anatomy of a Systematic Review Factsheet



National Collaborating Centre
for Methods and Tools

Centre de collaboration nationale
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Building capacity for
evidence-informed public health

What is a systematic review and why should we look for one?

A systematic review is a specific type of literature review that is conducted methodically and transparently and that can provide a high level of synthesized evidence on a given topic. Comprising data from available relevant studies, a systematic review can save you the time of finding and appraising individual studies. However, even these types of evidence sources must be critically appraised to assess their methodological quality and to determine if the authors have drawn appropriate conclusions.

Anatomy of a Systematic Review

To determine if a systematic review has been done well, you first need to know the parts of a systematic review. Then, you need to know where to focus your attention to assess the quality of the review. Below is a description of the different sections of a systematic review so you can quickly and easily find the information you need to complete the critical appraisal process.

Abstract: An overview of what is in the systematic review

Introduction: The review question; background information about the problem, intervention or population; the rationale for the question

Methods: A description of how the systematic review was conducted; criteria for including or excluding studies; how the search for studies was conducted; how the primary studies were assessed for quality and by whom; how data from the included studies were extracted, analyzed and synthesized

Results: A summary of individual studies included in the systematic review, including:

- the methodological quality and risk of bias of those studies;
- the key characteristics of the studies (e.g., demographics of study participants, setting, sample sizes, interventions, intervention comparisons); and
- the effect of the interventions on outcomes.

Discussion: A summary of the main results of the review; a comparison of the review's findings to existing literature; the review's limitations; the author's interpretation of the results and their implications for policy, practice and future research

Conclusion: A summary of recommendations for policy, practice and future research

The results of systematic reviews can be presented in different ways. **A narrative systematic review** qualitatively summarizes results from the different studies included in the systematic review. Where possible, a systematic review includes a **meta-analysis** that pools study findings statistically into a single result for a particular outcome across all studies. A meta-analysis generally includes a forest plot to visually describe the results from each study included in the systematic review, along with the overall results.



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Critical Appraisal

The table below lists the elements of a high-quality systematic review, as well as where to find information about each element in the publication or report.

Element	Where to find it in the publication
Clearly defined question (in PICO format: Population, Intervention, Comparison, Outcome)	<ul style="list-style-type: none">• Title• Abstract (also called Purpose)• Introduction (usually the last sentence in this section)
Clear and appropriate inclusion/exclusion criteria	<ul style="list-style-type: none">• Methods (first or second paragraph)
Comprehensive search strategy	<ul style="list-style-type: none">• Methods (first or second paragraph)
Appropriate search time frame	<ul style="list-style-type: none">• Methods (first or second paragraph)
Level of evidence	<ul style="list-style-type: none">• Methods (usually included with the inclusion/exclusion criteria)• Table of Results
Quality of included evidence	<ul style="list-style-type: none">• Results (table may be in the Results section or at end of the publication)
Transparency of methods for data extraction	<ul style="list-style-type: none">• Methods
Assessment of heterogeneity	<ul style="list-style-type: none">• Methods (included in Data Analysis)• Results• Forest Plots (if review is a meta-analysis)
Appropriately weighted results	<ul style="list-style-type: none">• Methods (usually included in Data Analysis)• Results• Forest Plots (if review is a meta-analysis)
Consistency of conclusion	<ul style="list-style-type: none">• Comparison of Results, Discussion and Conclusions• Comparison of Forest Plots, Discussion and Conclusions (if review is a meta-analysis)

Visit the NCCMT website for more information on critical appraisal of systematic reviews, including:

- Critical Appraisal of Systematic Reviews – online learning module
- Forest Plots: Understanding a Meta-Analysis in 5 Minutes or Less – Understanding Research Evidence video
- Tools for critical appraisal in the Registry of Methods and Tools

General References:

Crombie, I.K. (1996). *The Pocket Guide to Critical Appraisal*. London: BMJ Publishing Group.

Health Evidence. (2013). *Quality Assessment Tool & Dictionary – Review Articles*. Retrieved from <http://www.healthevidence.org/our-appraisal-tools.aspx>.

Higgins, J.P.T. & Green, S. (Editors). (2011). *Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]*. The Cochrane Collaboration, 2011. Retrieved from <http://www.cochrane-handbook.org>.

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