

Anatomy of a Systematic Review



National Collaborating Centre
for Methods and Tools

Centre de collaboration nationale
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A Tool to Help with Critical Appraisal

How do you know if a systematic review has been done well? First you need to know the parts that make up a systematic review; then you need to know where to focus your attention to assess the quality. This tool describes the anatomy of a systematic review so you can quickly and easily find the information you need to complete the critical appraisal process.

Anatomy of a Systematic Review

A systematic review consists of the following sections:

Abstract: The abstract provides an overview of what is in the systematic review.

Introduction: The introduction states the review question; provides background information about the problem, intervention or population; and gives rationale for the question.

Methods: The methods section describes how the systematic review was conducted. This section includes information about the criteria for including or excluding studies; how the search for studies was conducted; how the primary studies were assessed for quality and by whom; and how data from the included studies were extracted, analyzed and synthesized.

Results: The results section summarizes the findings reported in the individual studies included in the systematic review, including:

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

Discussion: The discussion section summarizes the main results of the review, compares the findings of the review to existing literature, and states limitations of the review. The discussion section also includes the author's interpretation of the results and their implications for policy, practice and future research.

Conclusion: The conclusion summarizes 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 statistically aggregates study findings. A meta-analysis generally includes a **forest plot** to visually describe the results from each study included in the systematic review, as well as the overall result.

What to look for and where to find it for efficient critical appraisal of research

What to Look for	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)
Inclusion/Exclusion Criteria	<ul style="list-style-type: none">• Methods (first or second paragraph)
Search strategy	<ul style="list-style-type: none">• Methods (first or second paragraph)
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
Heterogeneity	<ul style="list-style-type: none">• Methods (included in data analysis)• Results• Forest Plots (if review is a meta-analysis)
Weighted results	<ul style="list-style-type: none">• Methods (usually included in data analysis)• Results• Forest Plots (if review is a meta-analysis)
Believability of conclusions	<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)

For learning modules, videos and tools on critical appraisal, visit the NCCMT website: www.nccmt.ca

General references:

Crombie IK. (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 JPT, Green S (Editors). Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]. *The Cochrane Collaboration*, 2011. Available from www.cochrane-handbook.org.

How to cite this resource:

National Collaborating Centre for Methods and Tools. (2014). *Anatomy of a Systematic Review* [fact sheet]. Retrieved from http://www.nccmt.ca/pubs/FactSheet_AnatomySR_EN_WEB.pdf