

Research methodology/ design information

Name

Literature Review & Systematic/Meta-analysis Review

Summary

- secondary data collection

Literature review: A general summary of existing literature on a topic, similar in structure to other research papers

Systematic review: A detailed overview of primary research that focuses on a specific question, synthesizing and appraising all relevant evidence to answer it

Meta-analysis: A statistical method that summarizes and compares data from multiple studies to answer a specific question, providing a more precise estimate of the effect size than any individual study

Systematic reviews can sometimes use meta-analysis to synthesize their results, but they are distinct techniques. Meta-analyses only include studies that empirically examine the relationships of interest, while traditional qualitative literature reviews include all relevant studies.

Key info/ rules/ why it is used

Literature Review:

- requires a synthesis of different subtopics to come to a greater understanding of the state of knowledge on a larger issue
- works like a jigsaw puzzle
- individual pieces (arguments) are put together to reveal the whole (state of knowledge)
- it is not a bibliography where literature is summarized paragraph by paragraph
- use peer-reviewed sources and use your own words rather than over quoting

Systematic Review:

- an overview of primary research studies using reproducible methodology
- shows what we know and don't know about a topic
- aims to find all relevant research studies to assess each study on basis of defined criteria

Meta-Analysis Review:

- the process of using statistical methods to combine the results of different studies
- aims to integrate findings, pool data, and identify the overall trend of results
- the researcher decides which studies to choose based on criteria, may deal with incomplete data, and analyzes the data. These choices impact the results of a meta-analysis review

Example questions?

Literature Review

- **Summarizes** a topic that is **broad** in scope (e.x. cancer treatment)
- **Qualitative**
- May use sources that are **biased**
- Does **not** define what types of studies will be included (looks at everything)

Systematic Review

- Answers a **specific clinical question** (e.x. **PICO**) (e.x. Is Vitamin C or Chemotherapy a better cancer treatment in patients over the age of 40?)
- **Defines** a specific search strategy; lists what will be **included and excluded** in articles selected
- Can include a meta-analysis within the review (but no necessary)

Meta-Analysis

- Looks at studies from a systemic review
- Purpose: Combines similar studies and pulls **data** to get a **statistically** significant result
- Important because **statistical analysis** may overturn results of smaller clinical trials

Example (study from academic literature)

Systematic review and meta-analysis of physical activity interventions to increase elementary children's motor competence: a comprehensive school physical activity program perspective

<https://bmcpublichealth.biomedcentral.com/counter/pdf/10.1186/s12889-024-18145-1.pdf>

Video link

▶ What's the Difference between a Literature Review, Systematic Review, and Meta-Analysis?

▶ Systematic Literature Review and Meta Analysis