

Systematic Search

Definition

A **systematic search** is a structured, transparent, and reproducible method for identifying all relevant literature on a specific research question. It is a fundamental step in **systematic reviews** and **meta-analyses**, designed to **minimize selection bias** and ensure comprehensive evidence retrieval.

Key Characteristics

- Based on a clearly defined **research question** (often using PICO: Population, Intervention, Comparison, Outcome)
- Uses **multiple databases** (e.g., PubMed, Scopus, Cochrane, Embase)
- Includes **predefined search terms** and **Boolean operators** (AND, OR, NOT)
- Applies **inclusion and exclusion criteria** consistently
- Documents the entire process (databases used, search strings, dates, filters applied)
- May include **grey literature**, conference abstracts, or clinical trial registries

Example (from neuroscience study)

A systematic search was conducted in PubMed, Scopus, Web of Science, and Cochrane databases using terms related to “NSAIDs,” “craniotomy,” and “postoperative bleeding.” Studies comparing NSAIDs to non-NSAID analgesics in neurosurgery were selected based on predefined eligibility criteria.

Purpose

- Maximize **completeness** of evidence retrieval
- Reduce **bias** in the selection of studies
- Ensure **reproducibility** and **transparency** of the review process

Output

- A **PRISMA flow diagram** showing study selection
- A list of all included and excluded studies with justification
- Search strategy appendix (often required in publications)

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