



How to perform a good literature search

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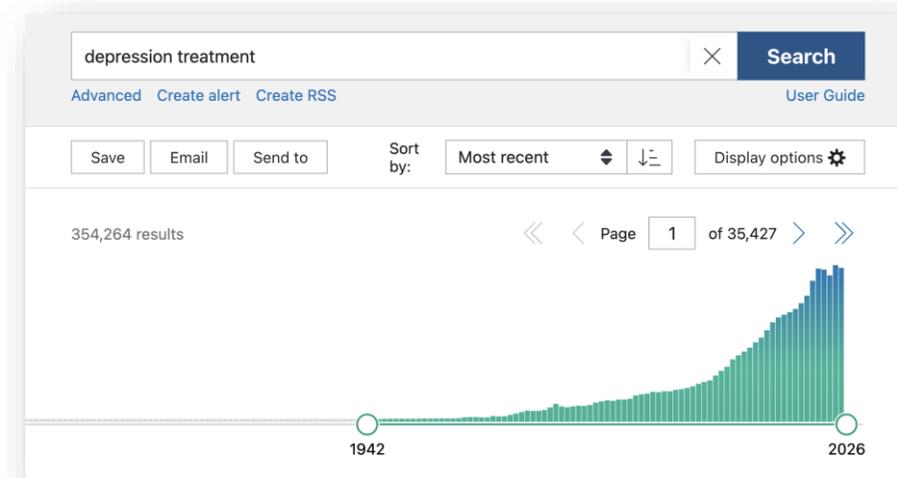
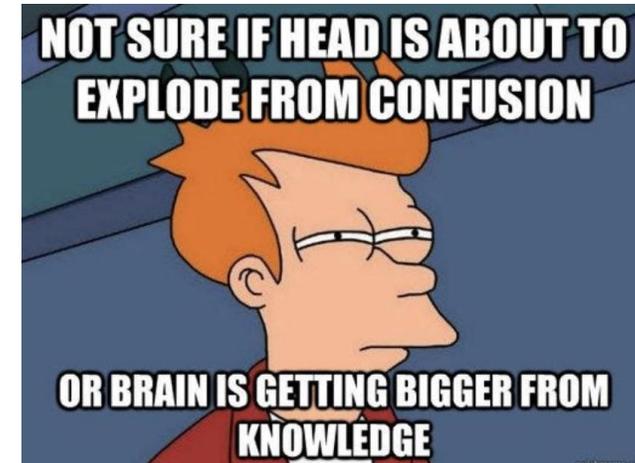


The Challenge in Literature Search

"We are drowning in information, but starving for knowledge"

John Naisbitt

Scientific output is growing exponentially, making it increasingly difficult for researchers to keep up with relevant findings



Types of reviews: systematic review, scoping review, umbrella review...

- What to do??



Types of reviews

Review Type	When to Use	Timeline	Quality Assessment	Key Characteristics	Example
Scoping Review	To explore emerging areas and map the literature	4-8 months	NO(optional)	<ul style="list-style-type: none"> - Broad research questions - Identifies gaps in literature - Maps key concepts and evidence 	<i>"What do we know about digital health in psychiatry?"</i>
Rapid Review	For urgent decisions and limited resources	2-6 months	Simplified	<ul style="list-style-type: none"> - Stream lined methodology - Trade-off: Speed vs.comprehensiveness - Modified systematic approach 	<i>"Evidence on COVID-19 and mental health"</i>
Systematic Review	For specific questions requiring rigorous synthesis	12-18+ months	YES (mandatory)	<ul style="list-style-type: none"> - Gold standard for clinical decisions - Comprehensive and reproducible - Strict inclusion/exclusion criteria - Risk of bias assessment 	<i>"Efficacy of CBT vs.pharmacotherapy in MDD"</i>
Umbrella Review /Meta-Review	To synthesize multiple existing systematic reviews	6-12 months	YES (o fincluded SRs)	<ul style="list-style-type: none"> - Review of reviews - Includes only published SRs/Mas - High-level evidence synthesis - Identifies consistencies/ discrepancies 	<i>"Effectiveness of all psychotherapies for anxiety disorders"</i>

Step by step

STEP 1

STEP 2

STEP 3

STEP 4

STEP 5

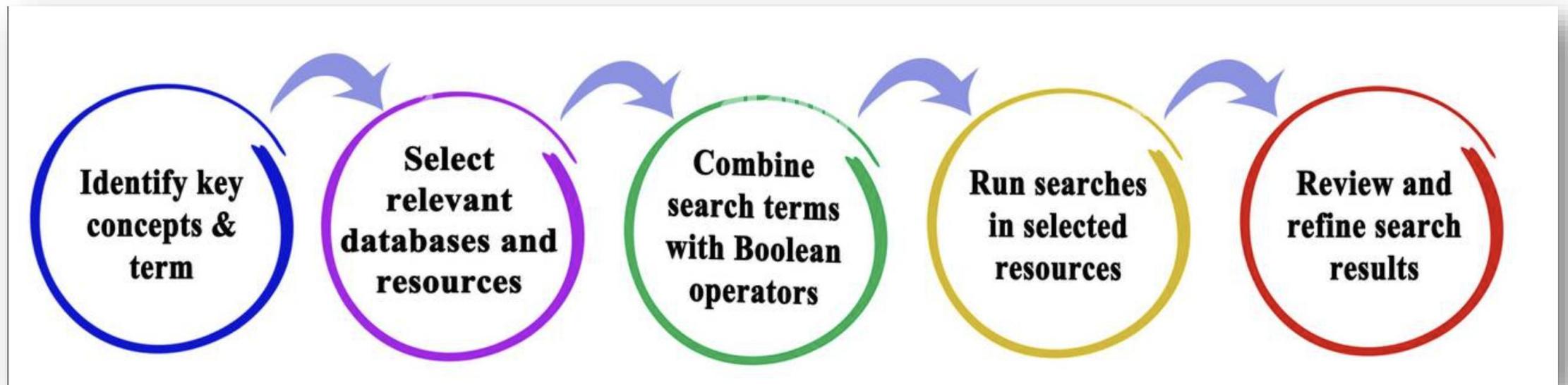
**Identify key
concepts &
term**

**Select
relevant
databases and
resources**

**Combine
search terms
with Boolean
operators**

**Run searches
in selected
resources**

**Review and
refine search
results**



Step 1: PICO- question components in medical sciences

- **P** –Population
 - Patients (demographic factors, setting...)
- **I** –Intervention
 - Drug, procedure, psychological intervention
- **C** –Comparison
 - Alternative to compare with the intervention (eg: placebo)
- **O** –Outcome
 - Improvement, effect, measures...

Focus your question and identify the main concepts

The cognitive profile of elderly patients with bipolar disorder compared with healthy controls

ELDERLY BD

(P)

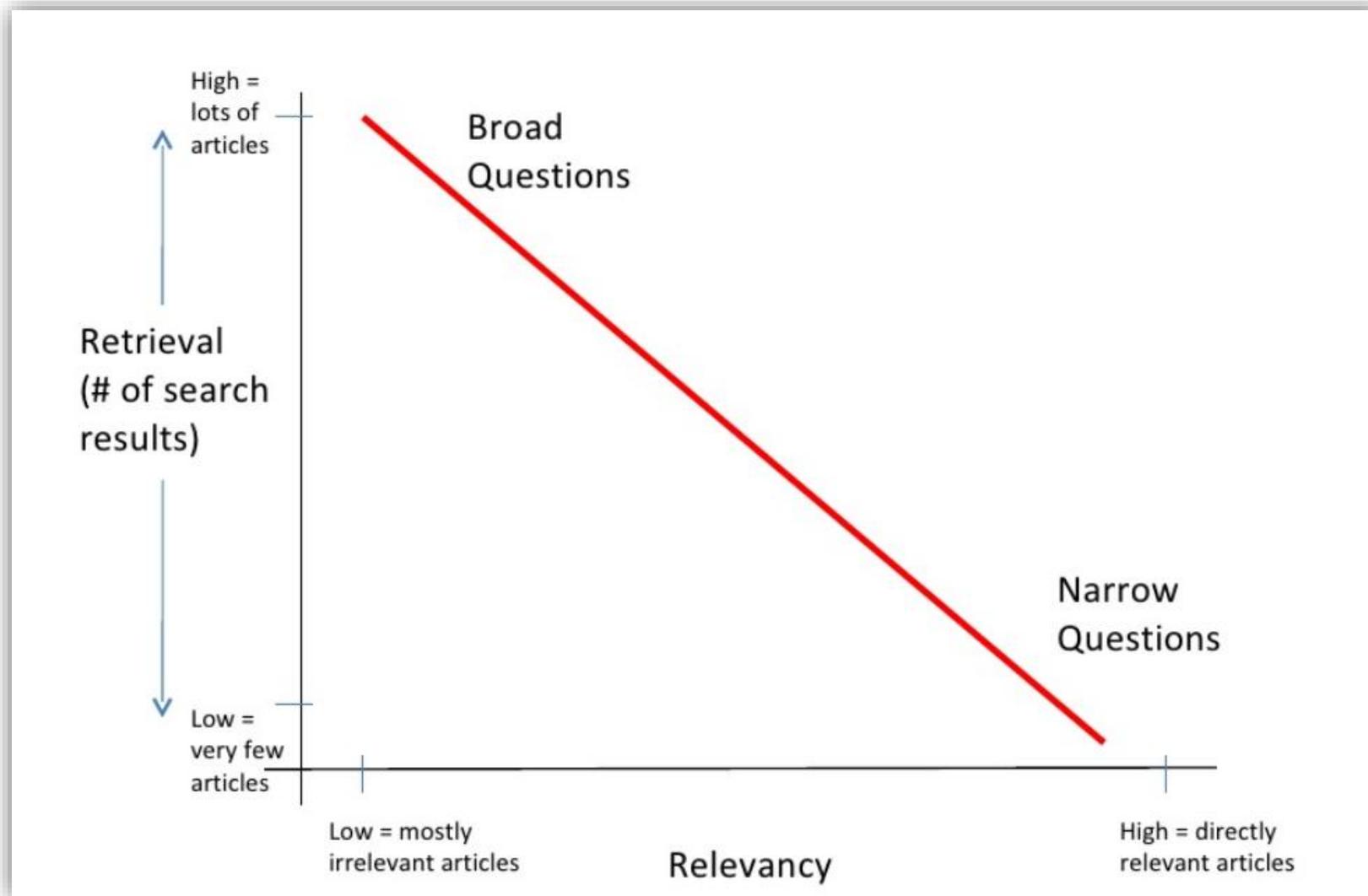
HEALTHY
CONTROLS

(C)

COGNITION

(O)

How questions influence your search results



Possible questions/searches

- **Broad**

- Peripheral inflammation and bipolar disorder (thousands results covering everything remotely related to inflammation)

- **Narrow**

- The effect of lithium and valproic acid on neurons (specific medication, specific outcome)

- **Very narrow:**

- The relationship between inflammatory cytokines ([TNF]- α , [TGF]- β 1, [IL]-6, IL-8 and IL-1 β) and scores in HAM-D in patients with bipolar I disorder (so specific you might only get a handful of studies, or even none)

Step 2: determine the appropriate databases

Some challenges...

Database Bias - No single database is likely to contain all published studies on a given subject

Publication Bias - selective publication of articles that show positive treatment of effects and statistical significance.

Hence, it is important to search for unpublished studies through a manual search of conference proceedings, correspondence with experts, and a search of clinical trials registries.

Step 2: determine the appropriate databases

Some more challenges...

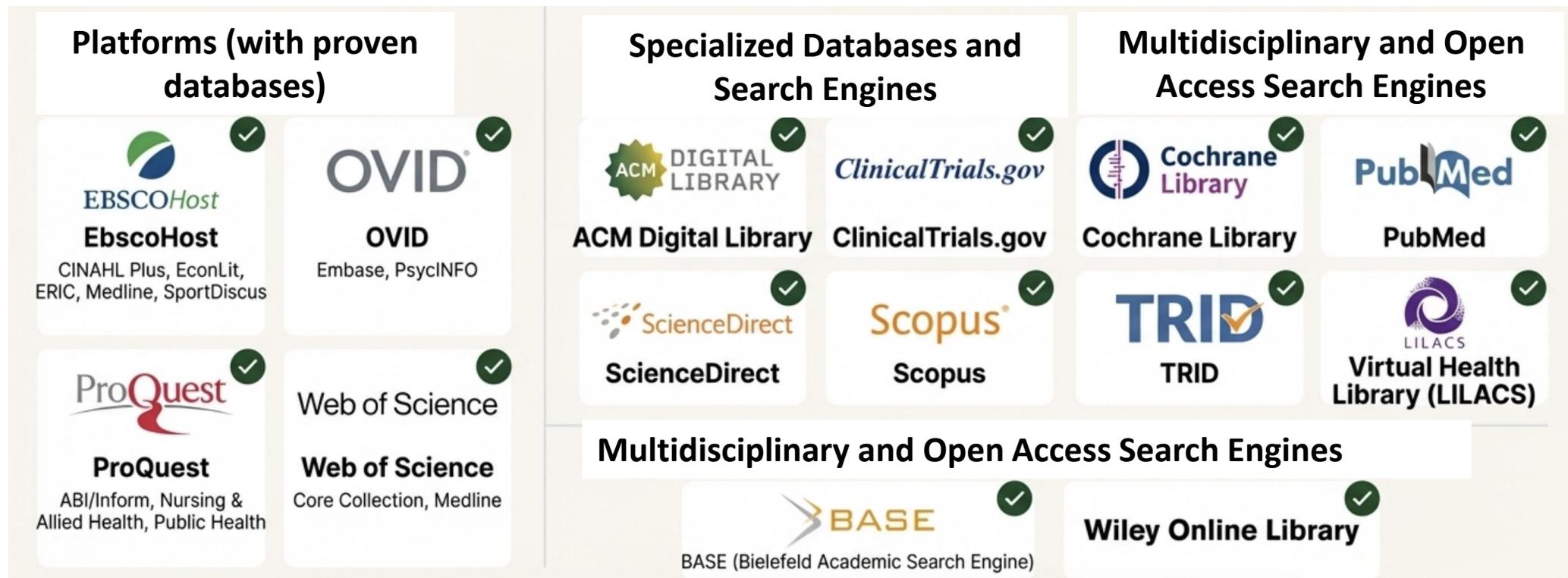
English-language bias - occurs when reviewers exclude papers published in languages other than English

Citation bias - occurs when studies with significant or positive results are referenced in other publications, compared with studies with inconclusive or negative findings

Output of different databases

The top 14 recommended resources for systematic searching

- These systems meet necessary criteria, guaranteeing **robust search functionalities, reproducibility, and the ability to handle complex queries**



Additional resources: Useful, but with red flags

- These systems failed at least one necessary criterion. They **should not be the basis of a systematic review**, but they **may be valuable for alternative search methods** (e.g., citation searches, grey literature).



Various reasons for  : lack of advanced search features, poor reproducibility, incomplete indexing, or inability to export results systematically

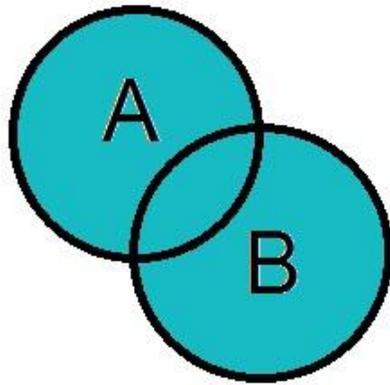
Considerations on the efficacy of different search engines and databases

- The problem with bibliographic searches is the **balance between sensitivity and specificity**
- **Broad searches** result in a great number of records that may contain (or even not contain) all the relevant material, but are impossible to process
- **Narrow searches** may result in loss of some extremely relevant records
- Some database sources have favourable, and some unfavourable Output/Useful records ratio (Bramer et al., 2017)
- **PubMed consistently ranks among the most efficient databases** for systematic reviews, with high precision, recall, and optimal output/useful records ratio (Gusenbauer & Haddaway, 2020; Borissov et al., 2020; Affengruber et al., 2024).

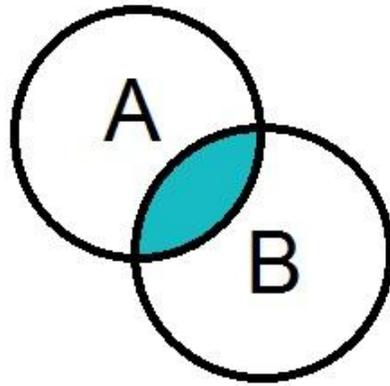
Step 3: develop a search strategy

- Identifying where to search (PubMed, Cochrane, PsychInfo...)
- Booleans, brackets, quotation marks...

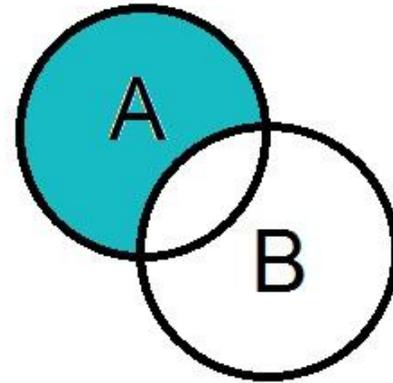
Boolean operators



A OR B



A AND B



A NOT B

Save

Email

Send to

Sort by:

Most recent



Display options

MY CUSTOM FILTERS

716,462 results

Page 1 of 71,647

RESULTS BY YEAR



PUBLICATION DATE

- 1 year
- 5 years
- 10 years
-

Psychological resilience and clinical depression on bone loss and fracture.

1 Lim Y, Jeong C, Kim J, Lee J, Ha J, Kim MK, Kwon HS, Song KH, Wang SM, Baek KH.

Cite Sci Rep. 2025 Nov 29. doi: 10.1038/s41598-025-27060-3. Online ahead of print.
PMID: 41315787

Among non-osteoporotic participants, subjects with clinical **depression** had a 1.40-fold (95% CI 1.07-1.92) higher fracture incidence than those without **depression**. ...Among non-osteoporotic participants, **depressive** individuals have a potentially increased risk ...

Blunted P300 Prospectively Bridges Cognitive Reappraisal and Depressive Symptoms.

2 Li K, Nash K, Zheng Y.

Cite Psychophysiology. 2025 Dec;62(12):e70196. doi: 10.1111/psyp.70196.
PMID: 41315763

Cognitive reappraisal is a crucial modulator of **depression**. Scant research has examined how the

Sort by:

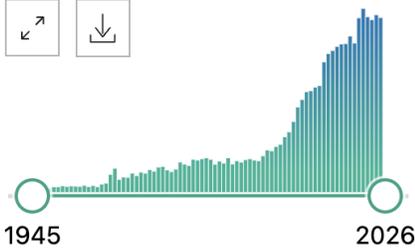


MY CUSTOM FILTERS

43,121 results

 << < Page of 4,313 > >>

RESULTS BY YEAR



PUBLICATION DATE

- 1 year
- 5 years
- 10 years
- Custom Range



1

Cite

Bipolar and schizophrenia risk gene AKAP11 encodes an autophagy receptor coupling the regulation of PKA kinase network homeostasis to synaptic transmission.

Lee YK, Xiao C, Zhou X, Wang L, McReynolds M, Wu Z, Han X, Purisic E, Kim H, Li X, Pang Z, Dai J, Peng J, Yang N, Yue Z.

Nat Commun. 2025 Nov 28;16(1):10792. doi: 10.1038/s41467-025-66356-w.

PMID: 41315293

Human genomic studies have identified protein-truncating variants in AKAP11 associated with both **bipolar disorder** (BD) and **schizophrenia** (SCZ), implicating a shared disease mechanism driven by loss-of-function. ...



2

Cite

Elevated synaptic PKA activity and abnormal striatal dopamine signaling in Akap11 mutant mice, a genetic model of schizophrenia and bipolar disorder.

Song BJ, Ge Y, Nicoletta A, Kwon MJ, Lodder B, Bonanno K, Valle-Tojeiro A, Hartley ND, Perzel Mandell K, Adeleye J, Misri D, Geng C, Natarajan S, Picard I, Shepard N, Hall A, Tian J, Aryal S, Farsi



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Truncation

- In PubMed the truncation symbol is the asterisk (*)
- Find all terms that begin with a given string of text
- The truncation function looks for only the first 600 variations
- Be aware! If we truncate too early the output can become overwhelming and irrelevant (for instance truncate psycho*: psychosis, psychodynamic, psychology, psychological, psychotherapy, psychosomatic...)

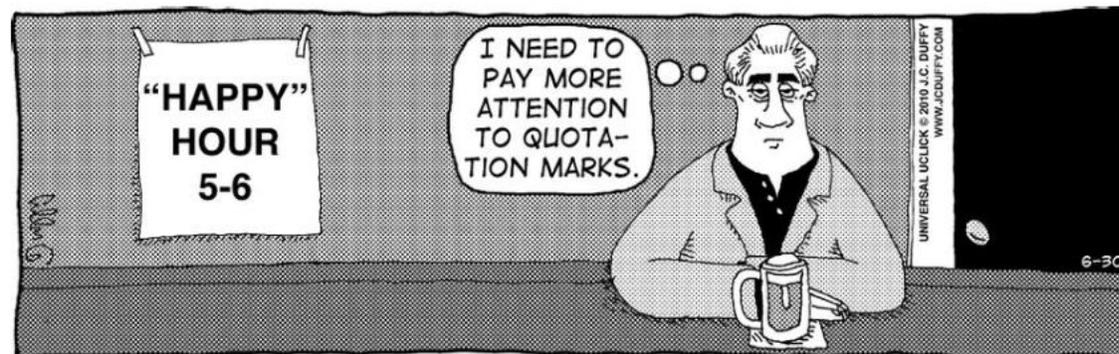
Truncation

- Can cause a search to time out if an excessive number of variants are generated.
 - Examples of truncation:
 - nurs* , finds nurse, nursing, nurses, etc
 - pharm* , finds pharmacology, pharmacy, pharmaceutical, etc

When to use truncation?	When to avoid?
For spelling variations : 'behavio*r' catches both 'behaviour' (British) and 'behavior' (American)	When the stem is too broad and catches unwanted terms
For word families where you want ALL variations: 'nurs*' gets nurse, nursing, nurses'	When you want specific terms only (better to list them explicitly with OR)

Searching for sentences

- **Exact Phrase:** Use quotation marks to search for an exact phrase
 - Examples: “evidence-based”; “psychosocial functioning”, “neurocognitive functioning”;
- **Quotations marks:**
 - You want a **specific multi-word term:** “evidence-based medicine”
 - You want **terms to appear together:** “psychosocial functioning”
 - You want to **avoid false matches:** “bipolar disorder” (ensures not to get articles that just mention “bipolar” and “disorder” separately)



MeSH Terms

The screenshot shows the top navigation bar of the MeSH Terms page. It includes social media icons for Twitter, Facebook, YouTube, LinkedIn, and GitHub, followed by a 'Blog' link. On the right, there is a 'Support Center' link with a question mark icon. Below the navigation bar, the page is divided into four columns: 'National Center for Biotechnology Information' with contact information and links; 'Popular' with a list of resources; 'Resources' with a list of categories; and 'Actions' with a list of user actions.

     [Blog](#)  [Support Center](#)

National Center for Biotechnology Information
8600 Rockville Pike
Bethesda, MD 20894
[About us](#) [Contact us](#) [Policies](#) [FOIA](#)

Popular
[PubMed](#)
[PubMed Central](#)
[Bookshelf](#)
[PubChem](#)
[Gene](#)
[BLAST](#)
[Nucleotide](#)
[Protein](#)
[GEO](#)

Resources
[Literature](#)
[Health](#)
[Genomes](#)
[Genes](#)
[Proteins](#)
[Chemicals](#)

Actions
[Submit](#)
[Download](#)
[Learn](#)
[Develop](#)
[Analyze](#)
[Research](#)

<https://pubmed.ncbi.nlm.nih.gov/>

MeSH Terms

- It is like a thesaurus that facilitates literature search (controlled vocabulary)
- The **various synonyms** of a given term are automatically included in the search query
- For example: COVID-19, novel coronavirus infection, corona virus, nCov, SARS-CoV-2... → if we use the MeSH terms, we do not need to include all these terms in our search

MeSH Terms



- **Breadth**: detecting synonyms and related terms
- Identifying the **scientific term**
- **Standardized** and consistent



- **Time lag**: delay between publication and indexing
- **Specificity**: might narrow your search
- **Hierarchical**, sometimes difficult to manage (MeSH Major Topic, Explode vs. Do Not Explode)

RECOMMENDATION: For comprehensive systematic reviews, use BOTH:

1. MeSH terms (to catch indexed articles with all synonyms)
2. Keywords in title/abstract (to catch recent articles not yet indexed, and articles using non-standard terminology)

Characteristic	Minor Topic (default)	Major Topic [MAJR]
Definition	Term appears ANYWHERE in the article (main or secondary topic)	Term is a PRIMARY focus of the article
Search syntax	Bipolar Disorder[MeSH] OR Cognition[MeSH]	Bipolar Disorder[MAJR] OR Cognition[MeSH Major Topic]
Number of results	HIGHER (more comprehensive)	LOWER (more focused)
Retrieves	<ul style="list-style-type: none"> Articles about the topic Articles mentioning it briefly Articles where it's background/context 	<ul style="list-style-type: none"> ONLY articles where the topic is a main subject Excludes passing mentions
When to use	<ul style="list-style-type: none"> Comprehensive searches Don't want to miss relevant articles Exploratory searches 	<ul style="list-style-type: none"> Too many irrelevant results Want highly focused results Topic must be central to the research
Sensitivity	HIGH (catches more articles)	LOWER (more selective)
Specificity	LOWER (includes tangential mentions)	HIGH (excludes tangential mentions)
Visual indicator in PubMed record	No asterisk in PubMed MeSH Terms: Bipolar Disorder Cognition	Asterisk (*) before term MeSH Terms: *Bipolar Disorder *Cognition

RECOMMENDED for systematic reviews: Start with **minor topics** for maximum sensitivity, then consider adding major topic restrictions only if results are unmanageable.

MeSH Terms

Which concepts are contained in the question?

*“Does hydration decrease incidence
of delirium at the end of life?”*

Find the MeSH heading(s) for each concept

MeSH Terms

Some practical suggestions...

Use MAJOR TOPIC when:

- You have >1,000 results and need to narrow down
- The concept **MUST** be central to the study
- You're doing a focused, specific review

Use MINOR TOPIC (default) when:

- You want comprehensive retrieval
- You can't afford to miss relevant studies
- You're in the initial exploratory phase

How can AI assist these steps?

1. ChatGPT / Claude / Gemini

Use: Brainstorming search terms, synonyms, spelling variations, and abbreviations

Example prompt:

"Generate a comprehensive list of synonyms and related terms for 'cognitive impairment' in the context of bipolar disorder. Include:

Spelling variations (US/UK English)

Common abbreviations

Related MeSH terms

Alternative technical terminology"

Limitation: Hallucinations → always verify MeSH terms directly in PubMed - AI can suggest non-existent terms

2. Elicit (elicit.com)

Use: Semantic search over a large academic corpus

Features:

- Automatic summaries of papers
- Structured data extraction
- Relevant paper suggestions based on your query

Best for: Finding papers on specific research questions and identifying gaps in literature

Precision: High for preliminary searches

How can AI assist these steps?

3. Consensus App (consensus.app)

Use: Research synthesis tool

Features:

- Responses backed by scientific evidence
- Automatic synthesis reports
- Trending topics in research areas

Best for: Early exploration phases and understanding the state of the field

Limitation: More useful for broad questions than highly specific searches

4. NotebookLM

Use: Analyze YOUR collected papers after initial search

Features:

- Upload PDFs/documents (up to 50 sources)
- Cross-document synthesis and comparison
- Automatic citation extraction
- Generate audio summaries (podcast format)
- Interactive Q&A with your sources

Best for:

- Synthesizing results AFTER screening phase
- Comparing findings across multiple papers
- Creating literature review summaries
- Identifying themes and contradictions in your corpus

Limitation: works with documents YOU provide (not a search engine)

Step 3: Developing the search strategy. To recap

- Identifying the keywords (single words or phrases)
- MeSH terms
- Booleans and brackets
- Truncation
- Quotation marks for exact phrases
- (Consider AI assistance for brainstorming, but verify everything)

Step 4: Perform the search!!!



Log in



Advanced

PubMed® comprises more than 37 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full text content from PubMed Central and publisher web sites.

Step 5a and 5b: evaluate, review, refine & save!

- Refine your search tracking changes and # of retrieved items.

Iterative process:

- Step 5a: evaluate
 - Step 5b: review & refine
- 

- Repeat step 5a and 5b until desired results obtained
- Export citations to a reference management software
 - EndNote, Mendeley... or RAYYAN, COVIDENCE!!

Record your searches and changes

Date	Search string	#results retrieved	Reasons for change	Filters applied	Search Engine
24.11.2024	bipolar disorder AND elderly AND cognition	2732	Too broad	None	PubMed
24.11.2024	"bipolar disorder" AND elderly AND cognition	2601	Still too broad	None	PubMed
24.11.2024	bipolar disorder AND aged [MeSH] AND cognition	884	Want to see what happens if I add a MeSH term	None	PubMed
25.11.2024	(bipolar disorder OR "affective disorders") AND aged [MeSH] AND cognition	1146	Want to make sure I include all the bipolar spectrum	None	PubMed
	(bipolar disorder OR "affective disorder" OR "Mood Disorders"[MeSH]) AND aged [MeSH]				PubMed

Step by step

1. Formulate a relevant question

The cognitive profile of elderly patients with bipolar disorder compared with healthy controls

ELDERLY BD

(P)

**HEALTHY
CONTROLS**

(C)

COGNITION

(O)

Step by step

2. Identify the concepts

Concept #1: bipolar disorder

Concept #2: elderly

Concept #3: cognition

Step by step

2b. Identify different keywords associated to each concept

How do I do it?

- *From other literature retrieved (ie: from PubMed related articles)*
 - *MeSH terms*
 - *Ask your colleagues*
 - *AI assistance ¿?*

Step by step

**3. Add the boolean operators, truncations where applicable,
exact phrases...**

(.... OR) AND (... OR....OR....) AND (.....OR....OR...)

Step by step

- Identifying where to search (PubMed, Cochrane, PsychInfo...)
- Export citations to a reference management software
 - EndNote, Mendeley... or RAYYAN, COVIDENCE!!
- Search strategy:

“We searched for articles published in The Medline/PubMed, Cochrane, and PsycInfo electronic databases up until September 2024. Strategy search was as follows: (bipolar disorder OR “affective disorders”) AND (elder OR old OR “late life” OR “older age” OR geriatric) AND (cognit* OR neurocognit* OR memory OR “cognitive functioning” OR neuropsychology). We used the same strategy in all electronic databases.”*

Useful tools for data extraction

- Different strategies to retrieve the information:
 - Using a Reference Management (Mendeley, Reference Manager, EndNote...)
 - Manual (download the search, combining with word and excel)
 - RAYYAN: <https://www.rayyan.ai/> (for selection of the studies)
 - OVID Discovery AI: <https://www.wolterskluwer.com/en/solutions/ovid/ovid-discovery> (institutional subscription)
 - COVIDENCE <https://www.covidence.org/> (both selection and extraction data)
 - DISTILLERSR <https://www.distillersr.com/products/distillersr-systematic-review-software> (both selection and extraction data)

Reference Management and Screening Tools Comparison

Tool	Cost	Best For	Deduplication	Collaboration
Mendeley	Free	Individual use, PDF management	Manual	Limited
Zotero	Free	Open source, flexibility	Plugins available	Good
EndNote	Paid	Institutional use, Word integration	Excellent	Excellent
RAYYAN	Freemium	SR screening, blinding	Automatic	Excellent
COVIDENCE	Paid	Complete SRs with data extraction	Automatic	Excellent

Recommendation: For systematic reviews, RAYYAN or COVIDENCE are highly recommended for their automation, collaboration features, and SR-specific workflows. For general reference management, Zotero offers excellent free functionality, while EndNote is preferred in institutional settings.

(Adapted from Harrison et al.,2020; Affengruber et al.,2024; Marshall & Wallace, 2019)

How can AI assist de-duplication task?

- The **most accurate methods** for identifying duplicate references were **Ovid, Covidence, and Rayyan**
 - Ovid multifile search: **97% Accuracy**.
 - Covidence: **96% Accuracy**.
 - Rayyan: **97% Accuracy**.
- **Ovid and Covidence** were identified as the **most efficient** methods because the de-duplication process is **fully automated**, requiring no user mediation to remove duplicates.
- Ovid and Covidence demonstrated the **highest specificity** (correctly identifying non-duplicates), while Rayyan showed the **highest sensitivity** (correctly identifying duplicates).

What Does Research Tell Us About AI Search Tools?

Review Stage	Software Performance	Recommendation
Search Strategy	Valid (precision = manual, low errors)	Use text-mining tools (MeSH Analyzer, PubReMiner, Polyglot) but verify with info specialist
De-duplication	Excellent (97% accuracy)	Automated tools (Covidence, Rayyan, Ovid) highly recommended with human verification
Study Selection	Best supported stage	Semi-automated screening (ASReview, EPPI-Reviewer) can identify 95% of studies after screening 31-67% of records (you need to train it)
Data Extraction	Moderate	Use as assistant only; humans must verify (especially for numerical data)
Risk of Bias	Moderate (46-100% agreement)	RobotReviewer for support only; always verify assessments

(Affengruber et al., 2024)

What Does Research Tell Us About AI Search Tools?

Software can accelerate systematic reviews, but human oversight remains essential

STRONG EVIDENCE FOR

- ✓ Automated deduplication (97% accuracy)
- ✓ Semi-automated screening (can reduce workload by 30-70%) (ASReview)
- ✓ Web-based collaborative platforms for project management

WEAK EVIDENCE/NOT RECOMMENDED

- X Full automatization of any review stage
- X Automated data extraction without verification
- X Risk of bias assessment without human review

Workflow AI integration

Stage	Method	Evidence
Pre-search	AI brainstorming (verify outputs)	Not fully supported use of AI
Search	Traditional Boolean (gold standard)	Not supported use of AI
Deduplication	Covidence/Rayyan (97% accuracy)	Supported use of AI
Screening	ASReview optional (30-70% faster)	Supported use of AI
Synthesis	NotebookLM ≤50 sources	¿?
Analysis	Traditional software	Not supported use of AI

Assess the quality of the evidence

- Cochrane recommends the following checklists for assessing the risk of bias of the individual studies included in your review, as these checklists work well with the GRADE system:
 - Randomised controlled trials: [RoB 2.0](https://www.riskofbias.info/welcome/rob-2-0-tool/current-version-of-rob-2) <https://www.riskofbias.info/welcome/rob-2-0-tool/current-version-of-rob-2>
 - Non-randomised controlled trials: [Newcastle-Ottawa](https://www.ohri.ca/programs/clinical_epidemiology/oxford.asp) scale https://www.ohri.ca/programs/clinical_epidemiology/oxford.asp or [ROBINS-I](https://www.bmj.com/content/355/bmj.i4919/related). <https://www.bmj.com/content/355/bmj.i4919/related> (ROBINS-I is quite complex so an expert on the team is desirable for its use).
 - Diagnostic studies: [QUADAS-2](https://www.bristol.ac.uk/population-health-sciences/projects/quadas/) <https://www.bristol.ac.uk/population-health-sciences/projects/quadas/>

Assess the quality of the evidence

Additional checklists from a range of organisations are available for assessing a variety of study designs:

- [CASP](#) (checklists for RCT, SRs, qualitative studies, cohort studies, diagnostic studies, case control studies, economic evaluation studies, clinical prediction rule studies)
- [CEBM](#) (checklists for SRs, diagnosis, prognosis, RCTs, qualitative studies, IPD reviews)
- [CONSORT](#) (checklist for RCTs)
- [COSMIN](#) (checklists for Patient Reported Outcome Measures, reliability or measurement error of outcome measurement instruments, study design, reporting)
- [Dartmouth Biomedical Libraries](#) (checklists for RCTs, SRs, practice guidelines, diagnostic test studies, prognosis studies, harm-etiology studies, qualitative studies)
- [Health Evidence](#) (checklist for review articles)

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) –Checklist

 **PRISMA 2009 Checklist**

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	

<https://www.prisma-statement.org/prisma-2020-checklist>

If you want to perform a systematic review, don't forget...

1. Planning Phase (BEFORE Starting):

- Register the SR protocol (e.g., in PROSPERO or other platforms¹).
- Define inclusion and exclusion criteria *a priori*.

2. Execution Phase:

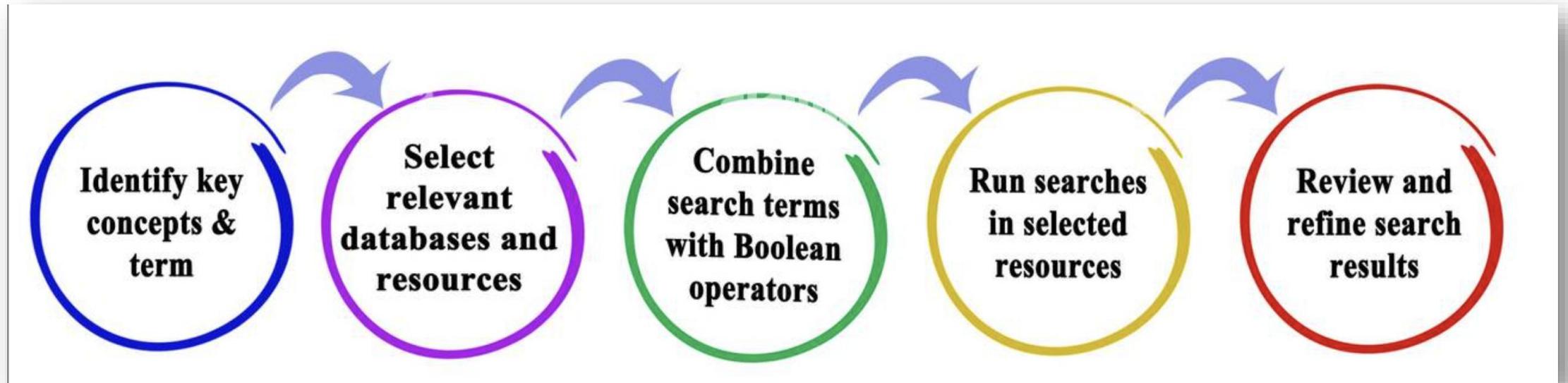
- Search a minimum of three different databases (e.g., PubMed, Scopus, Psyc Info).

3. Reporting and Quality Control:

- Use the PRISMA Checklist for transparent reporting.
- Apply appropriate quality assessment tools (e.g., Cochrane Risk of Bias tool, Newcastle-Ottawa Scale) to evaluate included studies.

¹Open Science Framework, Research Registry, INPLASY, protocols.io

To recap...



MeSH
Other publications (PubMed related articles)
Other colleagues

PubMed
Psych Info
Embase

AND
OR
NOT

Be systematic!
Iterative process

Search strategy	#results retrieved
bipolar disorder AND elderly AND cognition	2732
bipolar disorder AND aged [MeSH] AND cognition	884
(bipolar disorder OR "affective disorder") AND aged [MeSH] AND cognition	975

Bibliography

- Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, Shamseer L, Tetzlaff JM, Akl EA, Brennan SE, Chou R, Glanville J, Grimshaw JM, Hróbjartsson A, Lalu MM, Li T, Loder EW, Mayo-Wilson E, McDonald S, McGuinness LA, Stewart LA, Thomas J, Tricco AC, Welch VA, Whiting P, Moher D. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021 Mar 29;372:n71. doi: 10.1136/bmj.n71. PMID: 33782057; PMCID: PMC8005924
- Affengruber L, Nussbaumer-Streit B, Hamel C, et al. Rapid review methods series: Guidance on the use of supportive software. *BMJ Evid Based Med*. 2024;29(4):264-271. doi:10.1136/bmjebm-2023-112530
- Uman LS. Systematic reviews and meta-analyses. *J Can Acad Child Adolesc Psychiatry*. 2011 Feb;20(1):57-9. PMID: 21286370; PMCID: PMC3024725
- Basu A. How to conduct a meta-analysis: a basic tutorial. PeerJPreprints: <https://peerj.com/preprints/2978.pdf>

Bibliography

- Gusenbauer M, Haddaway NR. Which academic search systems are suitable for systematic reviews or meta-analyses? Evaluating retrieval qualities of Google Scholar, PubMed, and 26 other resources. *Res Synth Methods*. 2020;11(2):181-217. doi:10.1002/jrsm.1378
- Borissov N, Haas Q, Minder B, et al. Database combinations to retrieve systematic reviews in overviews of reviews: a methodological study. *BMC Med Res Methodol*. 2020;20:138. doi:10.1186/s12874-020-00983-3
- Bramer WM, Rethlefsen ML, Kleijnen J, Franco OH. Optimal database combinations for literature searches in systematic reviews: a prospective exploratory study. *Syst Rev*. 2017;6:245. doi:10.1186/s13643-017-0644-y

Extra bibliography

If you want to learn about clinical research, these are must-reads: High-level, clear, and practical resources for developing scientific judgment.

NEJM – Clinical Trials Series

- <https://nejm.org/clinical-trials-series>
- Essential explanations of clinical trial design, analysis, and interpretation.

JAMA Evidence

- <https://jamaevidence.mhmedical.com>
- Key concepts of evidence-based medicine (EBM), clinical guidelines, and tools for understanding evidence.

JCLEPI – Key Concepts in Clinical Epidemiology

- https://jclinepi.com/content/key_concepts
- Fundamentals of clinical epidemiology explained clearly

JCLEPI – GRADE Guidance

- <https://jclinepi.com/content/grade-guidance>
- Everything you need to understand and apply the GRADE system.