

**EVIDENCE SYNTHESIS**
IRELAND

**Cochrane**
Ireland

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Facilitator

- ▶ Julie Glanville
 - ▶ Independent Consultant in Information Retrieval
 - ▶ Previously Associate Director, York Health Economics Consortium and Associate Director, Centre for Reviews and Dissemination, University of York, UK
 - ▶ Co-author of the Cochrane Handbook chapter on searching and its technical supplement
 - ▶ Co-manager of the ISSG Search Filter Resource and the SuRe Info guide



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Agenda



AI tools for search strategy development, search planning and study identification for systematic reviews/evidence synthesis



Discussion

What are you finding useful?
What are you finding challenging?



Resources and references

<https://start.me/p/ogK7Om/evidence-synthesis-ireland-webinar>

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The evidence synthesis AI/SR context

AI Tools for Literature Reviews <i>A Step-by-Step Toolkit for Modern Researchers</i>		
Literature Search	Knowledge Maps	Note-taking
Scopus A free-powered research tool for scientific literature. Litmaps Automated literature mapping tool that visualizes research trends and identifies key papers. Perplexity AI-powered search engine that provides concise, summarized answers to research queries. scite AI-powered citation analysis tool that identifies research trends and influential papers. scilink AI-powered research tool that identifies research trends and influential papers.	Connected Papers Visualizes relationships between research papers and identifies key papers. Litmaps Automated literature mapping tool that visualizes research trends and identifies key papers. Reading Papers AI-powered research tool that identifies research trends and influential papers. scispace AI-powered research tool that identifies research trends and influential papers.	Glasp Note-taking and research tool that helps organize research notes and identify key papers. LITMAP Automated literature mapping tool that visualizes research trends and identifies key papers. CiteSpace AI-powered research tool that identifies research trends and influential papers. Paperpal AI-powered research tool that identifies research trends and influential papers. TRINKA AI-powered research tool that identifies research trends and influential papers. jenni AI-powered research tool that identifies research trends and influential papers.

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How should we be considering the use of AI for the creation of SRs?



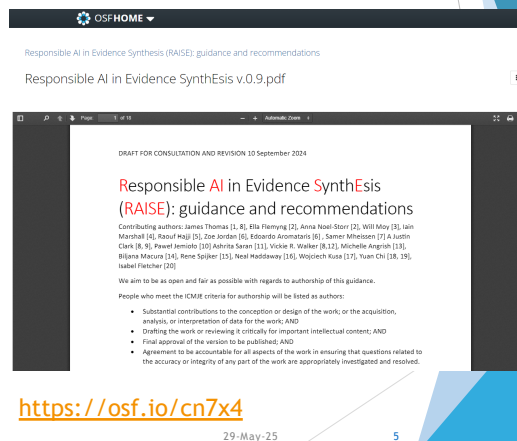
Several initiatives to watch

RAISE
Evidence
Synthesis
Infrastructure
Collaborative
DESTINY
Cochrane

RAISE guidance

- ▶ First draft published Sept 11 2024
 - ▶ Currently under revision
- ▶ Contributors: major SR organisations including Cochrane, Campbell, JBI, the Collaboration for Environmental Evidence, and Wellcome.
- ▶ Need to make better use of automation tools, but we need **framework for evaluation and adoption of AI**
- ▶ RAISE wants to ensure that standards for reliable evidence synthesis are not compromised
 - ▶ Need evaluation and validation so new tools are “systematically tested rigorously for use in evidence synthesis”

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RAISE continued

- ▶ “AI describes a set of advanced technologies that enable machines to do highly complex tasks effectively - which would require intelligence if a person were to perform them”
- ▶ “An evidence synthesist needs to know which tools are validated for use in their reviews, and how to use the tools in ways that enhance, and do not undermine, their work.”
 - ▶ There are draft recommendations for choosing, using, reporting use of AI
- ▶ ‘evidence synthesis methodologists’
 - ▶ “.. responsible for defining evidence synthesis best practice and ensuring it facilitates reliable and trustworthy evidence synthesis”
 - ▶ Further recommendations for evidence synthesis methodologists

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Source: <https://osf.io/cn7x4>

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Evidence Synthesis Infrastructure Collaborative

- ▶ “The Evidence Synthesis Infrastructure Collaborative (ESIC) Working Group (WG) 3 focuses on the **safe and responsible use of AI**, which is central to achieving ESIC’s vision of a “step-change improvement in how we produce and use evidence synthesis to address societal challenges, including how we accelerate progress with the sustainable development goals (SDGs)””
- ▶ “... several key principles to ensure ethical, transparent, sustainable, equitable, and effective integration of AI technologies.”
 - ▶ <https://evidencesynthesis.atlassian.net/wiki/spaces/ESE/pages/137691143/Stage+1+Reports>
 - ▶ <https://evidencesynthesis.atlassian.net/wiki/spaces/ESE/pages/190578689/Stage+2+Reports>
 - ▶ <https://evidencesynthesis.atlassian.net/wiki/spaces/ESE/pages/219217921/Stage+3+Reports>
- ▶ Considers:
 - ▶ Digital Evidence Synthesis Tools (DESTs)
 - ▶ Artificial Intelligence Digital Evidence Synthesis Tools (AI-DESTs)
- ▶ Stage 3 consultation process on working documents has closed recently

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ESIC WG 3: Safe and Responsible use of AI in evidence synthesis

- ▶ <https://evidencesynthesis.atlassian.net/wiki/spaces/ESE/pages/219217921/Stage+3+Reports>
- ▶ “Developing **a comprehensive, live inventory of AI tools for evidence synthesis**, categorized by task and sector, including tools from broader repositories to meet non-health sector needs. The live inventory should also incorporate automated surveillance mechanisms to monitor new developments and alert users when evidence syntheses require updating.”
- ▶ “To ensure the **safe and responsible use of AI in evidence synthesis**, **comprehensive guidelines** should be implemented, covering ethical, technical, and practical aspects, including bias mitigation, transparency auditing, environmental impact assessments, and green computing principles to minimize the ecological footprint of AI-supported activities.”

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DESTINY: Digital Evidence Synthesis Tool Innovation Yielding Improvements in Climate & Health

ve model Tool development Impact cases Consortium Events Contact

DESTINY AI-Powered Living Evidence for Climate & Health

It is our moral obligation to protect people around the world against the climate crisis based on the best and most recent evidence available. This is a Wellcome-funded consortium on a mission to build the next generation of evidence synthesis tools driven by artificial intelligence to deliver rigorous living evidence in climate and health that matters to policymakers and other evidence users.

DESTINY (Digital Evidence Synthesis Tool INnovation for Yielding Improvements in Climate & Health) will co-develop a new generation of digital evidence synthesis tools (DESTs) and showcase their transformational power for the delivery of rigorous living evidence in climate and health that matters to policymakers and other evidence users. This defines who we work with, how we work, and the technology we use to make evidence synthesis dramatically more useful. In particular, our project will:

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- ▶ <https://destiny-evidence.github.io/website/>
- ▶ Consortium to build AI tools (DESTs) for evidence synthesis

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Cochrane Handbook

- ▶ Searching chapter technical supplement 2024 update

Large language models, and AI tools that make use of them, seem likely to help with the development of search strategies and the identification of relevant studies, but should be used cautiously for the reasons described above. They should be used as a further search approach, in addition to the more traditional search methods described in this Handbook.

- ▶ <https://training.cochrane.org/handbook/current/chapter-04-technical-supplement>

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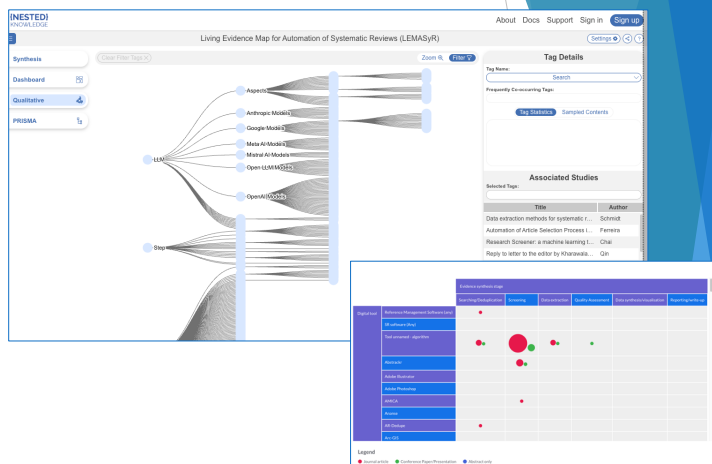
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Bibliographic control

- ▶ Keeping on top of the tools and publications evaluating them
 - ▶ Living Evidence Map for Automation of Systematic Reviews (LEMASyR)
 - ▶ Digital Evidence Synthesis Tool (DEST) evaluations
 - ▶ Generative large language model-based tools for health and social care applications
 - ▶ SR toolbox



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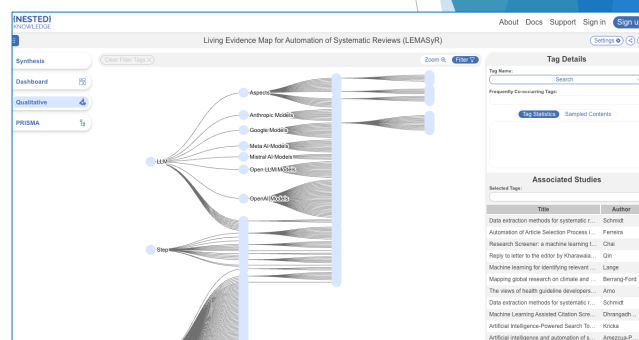
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Living Evidence Map for Automation of Systematic Reviews (LEMASyR)

- ▶ Bibliography of papers on the automation of SRs and evidence synthesis
 - ▶ Natural language processing
 - ▶ Machine learning
 - ▶ AI
 - ▶ Large language models
- ▶ Updated daily
- ▶ Free
- ▶ <https://nested-knowledge.com/nest/qualitative/21035>
- ▶ Brief How to Use: <https://youtu.be/bp7n1-loR7E?t=3326>
- ▶ 120 records under the 'searching' tag



Shokraneh, Farhad. Living Evidence Map for Automation of Systematic Reviews (LEMASyR). Nested Knowledge 2025.

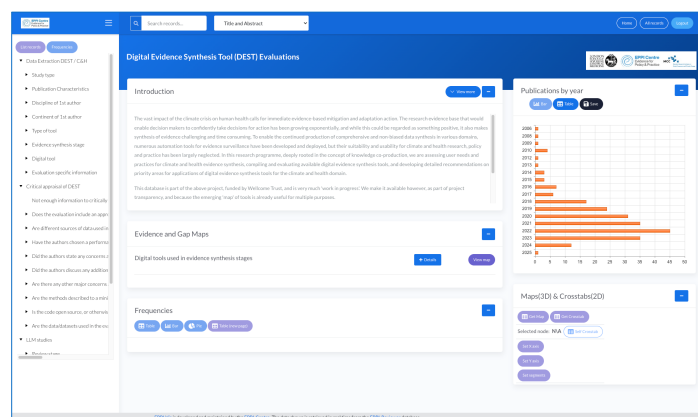
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Digital Evidence Synthesis Tool (DEST) evaluations



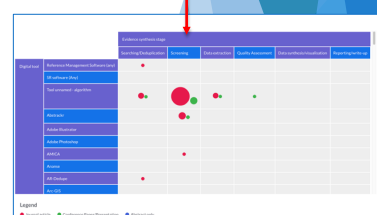
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<https://eppi.ioe.ac.uk/eppi-vis/Review/Index/435>

Evaluations of DESTs by stage of review

- Shows publications for searching stage of SRs



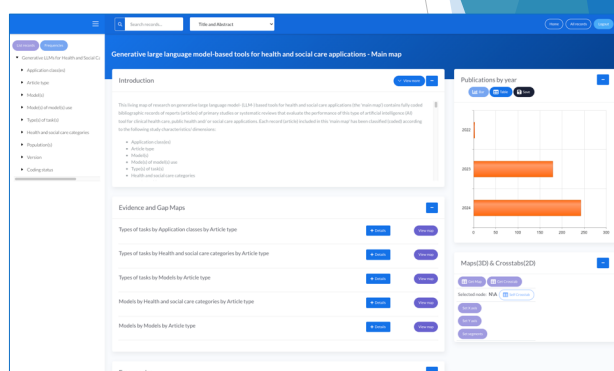
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Generative large language model-based tools for health and social care applications

- ▶ <https://eppi.ioe.ac.uk/EPPI-Vis/Review/Index/708>
- ▶ "...living map of research on generative large language model (LLM-) based tools for health and social care applications"
- ▶ Bibliography of reports of primary studies or systematic reviews that evaluate the performance of AI tools for health and social care.
 - ▶ Categorisations/coded
- ▶ How to use <https://eppi.ioe.ac.uk/CMS/Portals/07/Gen-LLM-Based-Tools-About-This-Map-Version-4-1.docx>

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Version 4: 10 Dec 2024

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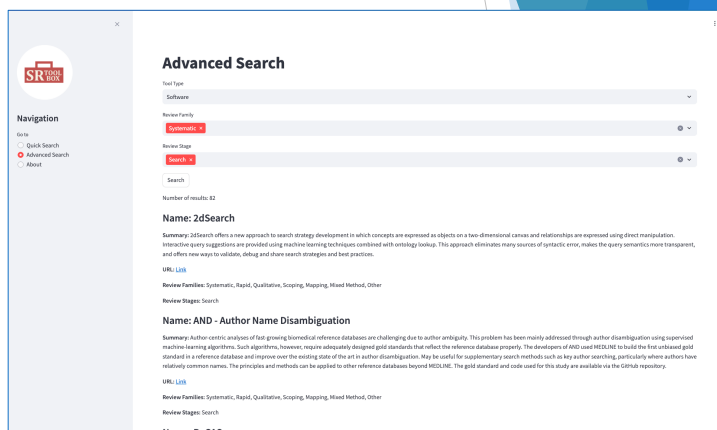
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SR Toolbox

- ▶ <https://systematicreviewtools.com/>
- ▶ Software for use with systematic reviews
- ▶ Includes search tools

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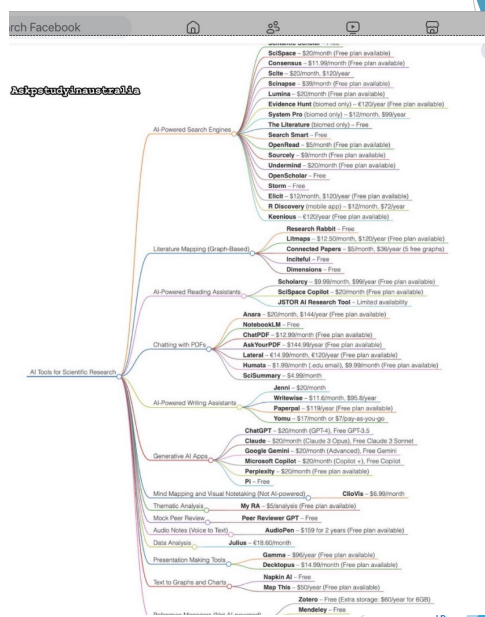
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Challenges

- ▶ Speed of change - moving target for evaluation
- ▶ Tools are becoming more similar
- ▶ Products becoming more about synthesis
- ▶ Which tools will last?
- ▶ Changing pricing arrangements

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<https://www.facebook.com/askpstudyinaustralia>

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Chatbots e.g. ChatGPT, Claude

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Chatbots for SRs: research

- ▶ Clark, J, Barton, B, Albarqouni, L, Byambasuren, O, Jowsey, T, et al. Generative artificial intelligence use in evidence synthesis: A systematic review. *Research Synthesis Methods*. 2025:1-19.
 - ▶ Use of chatbots such as ChatGPT
 - ▶ Search concluded in Jan 2025
 - ▶ 3 studies evaluated GenAI for conducting literature search tasks in evidence synthesis
 - ▶ All three assessed recall (percentage of relevant studies found) - ranged from 4% to 32% (mean 13%)
 - ▶ 2/3 found human searching had a smaller precision range than chatbots: NNR: 9 to 35 vs. 9 to 1,287 (mean 14)
 - ▶ 1 study found using GenAI tools took less time to design searches than humans (range: five to 57 minutes, compared to 644 minutes for humans)

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Sanii Ryan, Y, et al. Utility of Artificial Intelligence in Orthopedic Surgery Literature Review: A Comparative Pilot Study. *Orthopedics*. 2024;47(3):e125-e30.

ChatGPT (4.6% sensitivity);
Perplexity.AI (18.2% sensitivity)

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Chatbots for SRs: research, 2

- ▶ Spillias, S et al. Human-AI collaboration to identify literature for evidence synthesis. *Cell Reports Sustainability*. 2024;1(7):100132.
 - ▶ Used AI to generate search strategy
 - ▶ Too many concepts (too precise)
 - ▶ But helpful in terms of suggesting concepts for discussion and also helping to create an inclusive search strategy through rapidly providing a list of non-English terms used to describe community-based fisheries management related terms in the Pacific
- ▶ De Cassai, A et al. Evaluating the utility of large language models in generating search strings for systematic reviews in anesthesiology: a comparative analysis of top-ranked journals. *Regional Anesthesia and Pain Medicine*, 2025;rapm-2024.
 - ▶ Librarian achieved better retrieval than ChatGPT 4o generated search strings in PubMed retrieval studies.

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How useful are general purpose chatbots when developing search strategies?

Suggesting subject headings	Suggesting search terms	Suggesting concepts	Suggesting how to structure the search	Frequency analysis	Identifying/adding search filters
<ul style="list-style-type: none"> • Accuracy of MeSH seems to be improving • But LLMs generate hallucinations for other indexing languages 	<ul style="list-style-type: none"> • Can be useful, but there is a tendency to offer only a selection of terms, and to emphasise phrases. • Often does not suggest truncation • May not suggest that there are additional terms to find • May not offer term variants, split terms 	<ul style="list-style-type: none"> • This is proving more useful, especially for helping to think about complex topics • Answers unlikely to remain the same over time • Important to vary the wording of the prompts 	<ul style="list-style-type: none"> • This can spark thoughts • But often the chatbots offer complex multicomponent concepts rather than a single concept 	<ul style="list-style-type: none"> • General chatbots can generate frequency analyses, but the selections/methods made may not always be transparent 	<ul style="list-style-type: none"> • ChatGPT and Claude are NOT good at this

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LLMs for question exploration

► Claude.ai

JG I need to develop a PubMed search strategy to find studies that report on the timing of providing discharge information to parents or carers of hospitalized children. Please suggest concepts that I can search for and also concepts that might introduce noise into my search

Claude 3.7 Sonnet

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Claude's response

Core Concepts to Include

1. **Population: Hospitalized Children**
 - pediatric patients, hospitalized children, inpatient children
 - pediatric wards, children's hospital
 - age-specific terms: infant, child, adolescent, youth
2. **Recipients: Parents/Carers**
 - parents, caregivers, family, mother, father
 - guardian, carer
3. **Process: Discharge**
 - hospital discharge, patient discharge
 - transition of care
 - discharge planning, discharge process
4. **Information Component**
 - discharge instructions, discharge information
 - patient education, health education
 - discharge summary, aftercare instructions
 - educational materials, information needs
5. **Timing Element**
 - timing, time, early, late
 - advance, prior to discharge
 - day of discharge

Potential Noise Sources

1. **Adult-focused discharge studies**
 - Consider using MeSH terms and filters to focus on pediatric population
2. **Studies about discharge content only (not timing)**
 - May need to manually filter these or include specific timing-related terms
3. **Studies about timing of the discharge itself** (not information provision)
 - Length of stay, early discharge, discharge delays
4. **Studies about discharge to places other than home**
 - Transfer to other facilities, specialist care transitions
5. **Studies focused on specific medical conditions only**
 - Unless you're interested in a specific condition, these might introduce noise
6. **Healthcare provider education** (rather than parent education)
 - Staff training about discharge processes

Would you like me to suggest a specific PubMed search string combining these concepts? Or would you prefer to discuss any of these concepts in more detail first?

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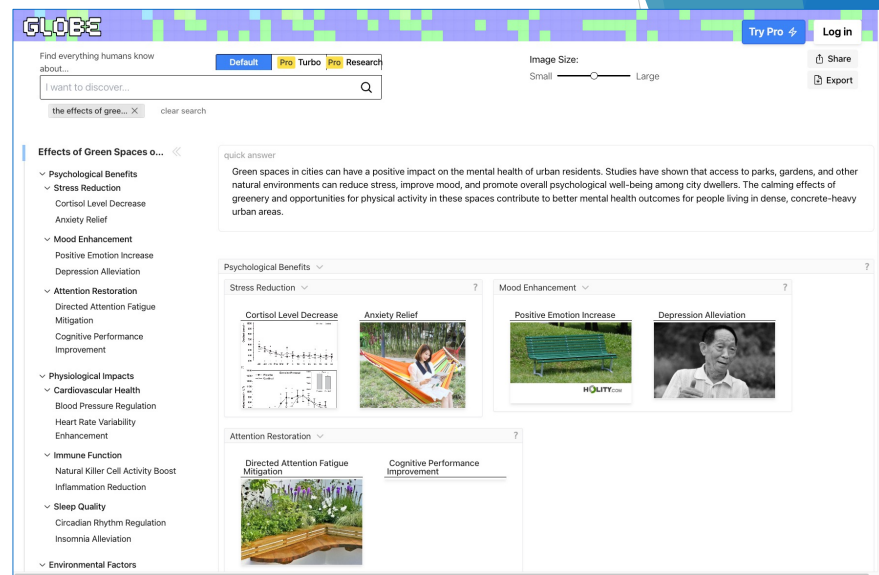
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Globe explorer

<https://explorer.globe-engineer/>



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Academic search tools with AI

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What are these?

- ▶ Services that search the academic literature collections e.g. Semantic Scholar, Lens.org or OpenAlex
- ▶ Plus use generative AI to aid with summarising, categorising, additional outputs
 - ▶ Retrieval Augmented Generation (RAG) - linking AI options with search of large academic literature collections
 - ▶ May also used semantic analysis as well
- ▶ Many options available - free and charged
 - ▶ some search full text

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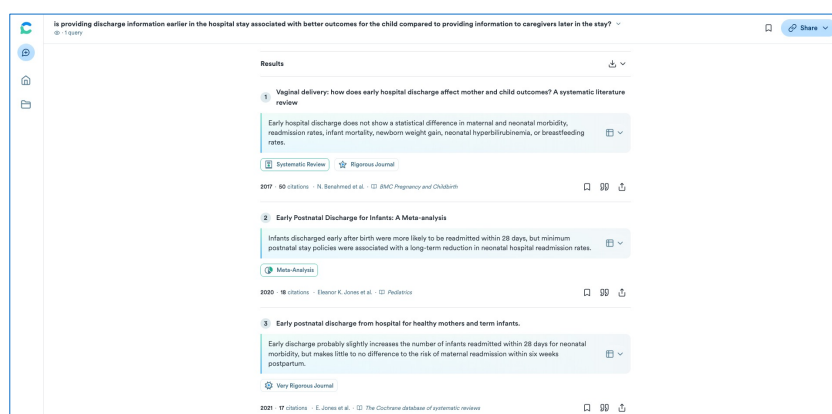


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Example: Consensus



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Evaluations

- ▶ Gorton, Cassandra. Tech Showdown - AI Search Tools Special Issue. Journal of Health Information and Libraries Australasia. 2025;5(1):5-8.
 - ▶ Assessed and rated 22 AI tools e.g. Consensus, Scite, Perplexity, Lens.org
 - ▶ Mix of search tools+AI and publication collections
 - ▶ Most useful with 9/10 ranking were
 - ▶ Consensus.app, Evidence Hunt, Lens.org, and Semantic Scholar
 - ▶ Tools with 8/10 ranking were:
 - ▶ Elicit, Litmaps, OpenAlex, and Scinapse
 - ▶ Monash University guide on AI tools
 - ▶ https://monashhealth.libguides.com/systematic_searching/expand

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AI Search Tools

AI search tools can find articles through machine learning and large language models (LLMs). However, they do not replace systematic, structured searching in scholarly databases. Presented below are the top-rated tools evaluated by Monash Health Librarians.



Tool	Cost	Full Text Linking	Export Options	Source of Citations	Product Support	Rating	Best for
Consensus.app	Free	Yes	LINK	Semantic Scholar	Detailed	9/10	Generating a summary from multiple articles
Evidence Hunt	Free	Yes	CSV	PubMed, NICE	Limited	9/10	Generating a summary from recent articles
Lens.org	Free	Yes	BBTex, CSV, RIS, JSTOR	Microsoft Academic, Crossref, PubMed, OpenAlex	Detailed	9/10	Finding additional articles, including grey literature
Semantic Scholar	Free	Yes	BBTex, EndNote	PubMed, BioRxiv, MedRxiv, and directly from major publishers	Detailed	9/10	Generating a summary from individual articles, getting alerts for new articles
Elicit	Based on a credit system. Get a limited amount of credits with a free account	No	BBTex, CSV, RIS	Semantic Scholar	Detailed	8/10	Generating a summary from multiple articles
Litmaps	Search up to 20 results with the free account	Yes	BBTex, CSV, RIS	Crossref, Semantic Scholar, OpenAlex	Detailed	8/10	Finding additional articles
OpenAlex	Free	No	CSV, TXT	Microsoft Academic, Crossref, ORCID, DOI, Unpaywall, PubMed, web crawls, and more	Detailed	8/10	Finding highly cited articles
Scinapse	Paid account offers additional analytics	Yes	BBTex, CSV, RIS	PubMed, OpenAlex, Semantic Scholar, Microsoft Academic, and more	Limited	8/10	Finding additional articles
Honourable mentions (7-6/10)		Dimensions, Scite, Perplexity, Tendr.io, LitSense		Additional Tools		ResearchRabbit, MimirThink, Copilot, Phind, ChatGPT, SciSpace, OpenRead, Google Gemini, Claude	
				Discussions (9/10 and below)			

April, 2024

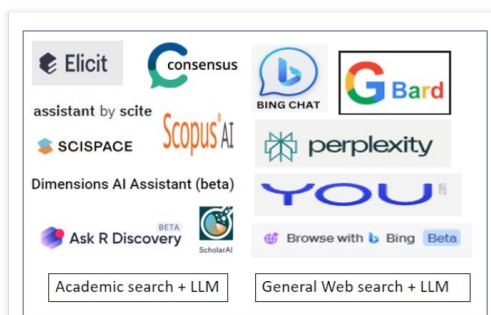
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Aaron Tay's list of academic search engines

List of academic search engines that use Large Language models for generative answers (Updated to April 2025)



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<https://musingsaboutlibrarianship.blogspot.com/p/list-of-academic-search-engines-that.html>

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Artificial Intelligence Applications for Social Science Research

- ▶ <https://scholarsjunction.msstate.edu/context/ssrc-publications/article/1005/type/native/viewcontent>
- ▶ Excel database of 250 Artificial Intelligence applications useful for social science research
- ▶ Provides a name, description, and links
- ▶ Current: 29 September 2023
- ▶ Gives information about costs, log-in requirements, and whether plug-ins or browser extensions are available
- ▶ **132 AI tools were possibly for literature reviews or writing**

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Research on AI search tools

- ▶ AI tools cannot replace traditional search approaches at present in terms of sensitivity
 - ▶ But there is some evidence that AI search tools can unearth additional relevant references
 - ▶ But they bring other challenges such as inaccurate references and irrelevant results
- ▶ Tomczyk, P., Brüggemann, P., Mergner, N., & Petrescu, M. Are AI tools better than traditional tools in literature searching? Evidence from E-commerce research. *Journal of Librarianship and Information Science* 2024
<https://doi.org/10.1177/09610006241295802>
 - ▶ van den Schoot, R., Coimbra, B. M., Evenhuis, T., Lombaers, P., Weijdemans, F., de Bruin, L. et al. The Hunt for the Last Relevant Paper: Blending the best of humans and AI. *Psyarxiv* 2025
https://osf.io/preprints/psyarxiv/p4xm5_v2

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How can AI tools help with search strategy development?

Finding additional relevant studies	Identifying concepts/themes	Strategy building
e.g. Consensus Full text searching e.g. Ai2 Paper Finder Grey literature e.g. Perplexity	Clarifying themes/concepts Identifying sources of noise • e.g. Consensus Question clarification	Helping with strategy design • e.g. Search 2D

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My selection of tools



Free or has reasonable options at the free level

I have not included Scite
It is useful but it charges and the free trial period involves providing a credit card



Seem to have some added value for search preparation/review scoping

I am a searcher - I am interested in the references not the AI-generated summaries



Quick to learn and easy to use

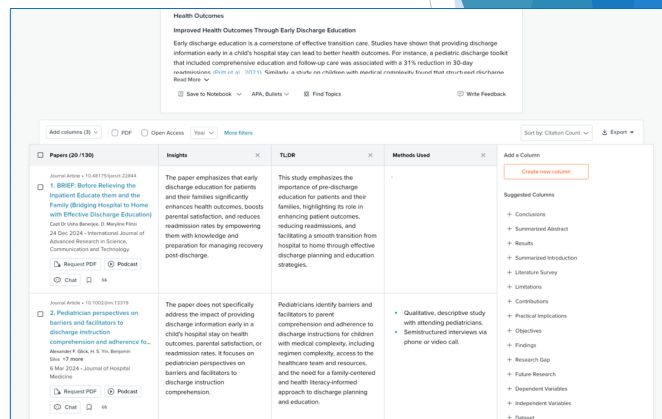
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Scispace

- ▶ <https://typeset.io/>
- ▶ Searching metadata of 200M+ papers and 50 million+ **Open Access full-text PDFs**
- ▶ Useful for
 - ▶ study finding
 - ▶ Suggests related questions
 - ▶ Exports in CSV, RIS and other formats
 - ▶ 'Find topics' option (next slide)
 - ▶ Can select data to review in detail e.g. methods
 - ▶ All disciplines



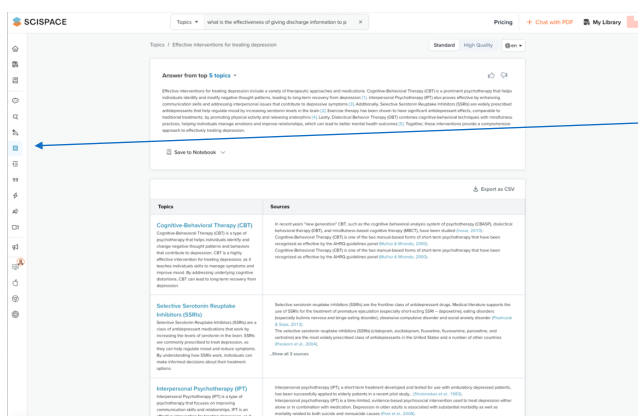
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SciSpace suggests concepts relating to a specific question



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<https://typeset.io/>

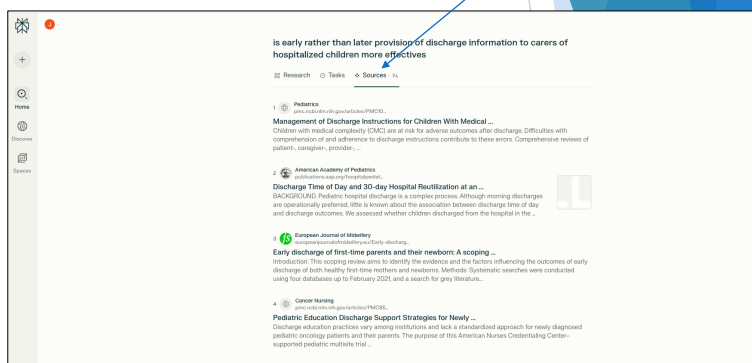
Select the **Find Topics** option and type in the query to get a list of concepts

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Perplexity

- ▶ Perplexity.ai
- ▶ Searches the internet in real time, using LLM
- ▶ Useful for
 - ▶ Access to grey literature using the **simple Search option**
 - ▶ **Select Research option** for a lengthy analysis of more academic research
 - ▶ 'Tasks' display shows the questions it has used
- ▶ **But**
 - ▶ Takes a few minutes to run
 - ▶ No easy export
 - ▶ Caution when using Perplexity - incorrect details (see webinar website for publications)

Click on 'Sources' for reference list



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LitSense

- ▶ <https://www.ncbi.nlm.nih.gov/research/litsense/>
- ▶ Searches 30 million PubMed abstracts and nearly 3 million full texts
- ▶ "Neural embedding techniques allow LitSense to find semantically similar results even without explicitly mentioning the query keywords."
- ▶ Rich data plus semantic analysis
- ▶ Searches can be restricted to specific parts of the paper



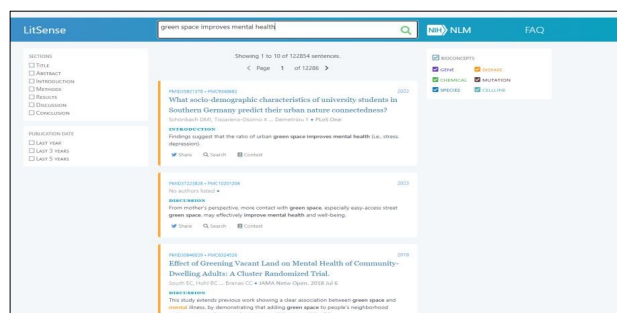
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LitSense 2



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- ▶ Try several different sentences as some may map easier than others onto the available text
- ▶ “...only displays sentences that share at least 60% of similar terms with the query sentence” - keep sentences short
- ▶ Coloured vertical line shows similarity level to query (orange= high and blue= low)
- ▶ Try to reduce bias in your queries
 - ▶ green space improves mental health
 - ▶ green space does not improve mental health

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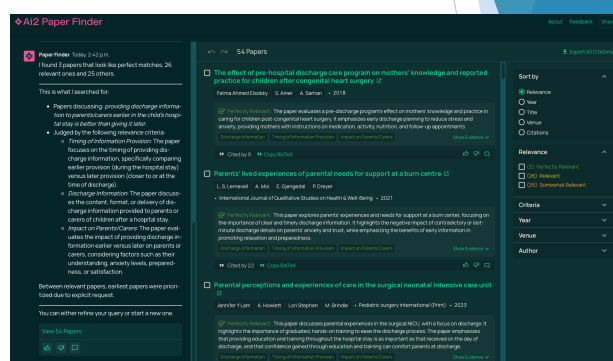
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Ai2 Paper Finder

- ▶ <https://paperfinder.allen.ai/chat>
- ▶ Searches Semantic Scholar
- ▶ Useful for:
 - ▶ Just a paper finder - no summaries!
 - ▶ Trying to emulate a search process: “literature search is a multi-step process that involves learning and iterating as you go.”
 - ▶ Aims “to cover the long tail of more niche findings and hard-to-find papers that requires an iterative process...”
 - ▶ Provides context snippets
 - ▶ Provides a relevance assessment
 - ▶ All disciplines
- ▶ Provides quite detailed information on what is going on during the search
- ▶ But only exports in BibTex, JSON, Markdown

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Undermind

- ▶ <https://www.undermind.ai/home/>
- ▶ Searches Semantic Scholar using AI involving citation analysis
- ▶ Useful for
 - ▶ Interactive dialogue to help refine the search question
 - ▶ Study finding
 - ▶ Can explore references using a variety of categories and thematically
 - ▶ **Completeness estimate - certainty that results are complete**
 - ▶ Categorises papers by suggested themes
- ▶ But
 - ▶ It can take several minutes to generate a report
 - ▶ Exporting is not free
- ▶ Subscription version offers a range of interesting analyses

- ▶ Show example search report
- ▶ <https://app.undermind.ai/report/f8a1a7686f8c6bb060076ab8fd7abcb3e3e0859eb41ef9fd30fd67d0c8985>
- ▶ Note this shows some features that are only available in the charged version

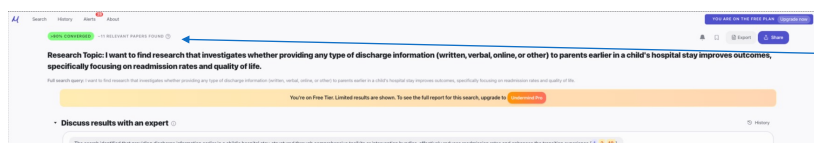
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Undermind 2: discovery progress



Click on the query

Provides an estimate of how far the search results represent the total literature

1.1 HOW IT WORKS

There are four steps to Undermind's algorithm:

1. **Basic search:** We identify promising candidate papers using a custom algorithm that combines semantic vector embeddings, citations, and language model reasoning.
2. **Relevance classification:** Given your search query, a high quality language model (GPT-4) accurately classifies each candidate paper based on its full text into 3 categories: highly relevant, closely related (meaning relevant, but slightly off-topic), or ignorable. See Appendix 2.2 for classification accuracy statistics.
3. **Adaptation and exploration:** The algorithm adapts and searches again based on the relevant content it has discovered. This adaptation, which mimics a human's discovery process, makes it possible to uncover every relevant result.
4. **Estimating comprehensiveness:** Undermind tracks how frequently it discovers relevant papers during each search. Undermind initially finds many relevant results, but over time diminishing returns set in, empirically leading to "discovery curves" which are exponential in form (see Fig. 1(b)). Modeling this process allows us to determine when Undermind has found nearly all the relevant works.

Source: https://www.undermind.ai/static/Undermind_whitepaper.pdf

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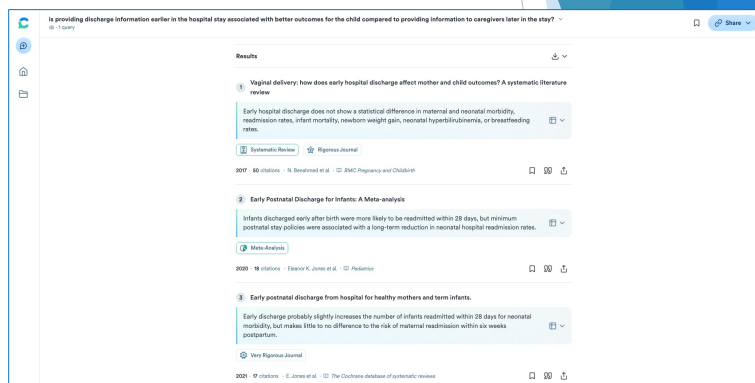
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Consensus

- ▶ <https://consensus.app/search/>
- ▶ Searches Semantic Scholar (200m papers)
- ▶ Useful for
 - ▶ Study finding
 - ▶ Provides additional 'suggested searches'
 - ▶ Export results as CSV or RIS
 - ▶ All disciplines
- ▶ Provides a summary, but remains quite rapid

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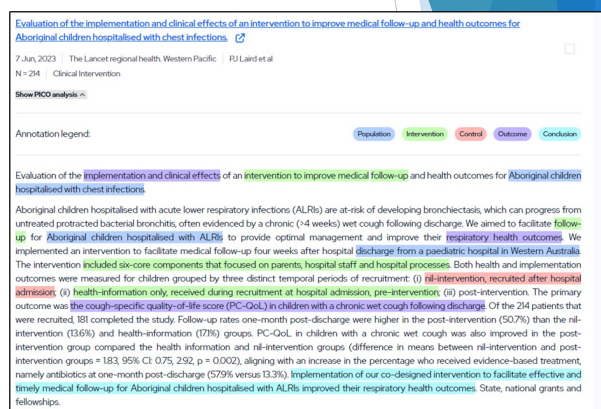
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EvidenceHunt

- ▶ <https://evidencehunt.com/>
- ▶ It searches PubMed (synced daily) or NICE guidelines
- ▶ Useful for
 - ▶ Study finding
 - ▶ Chat mode: Finds studies
 - ▶ PICO elements are highlighted when you click on a reference to an abstract
 - ▶ Exports in CSV or RIS

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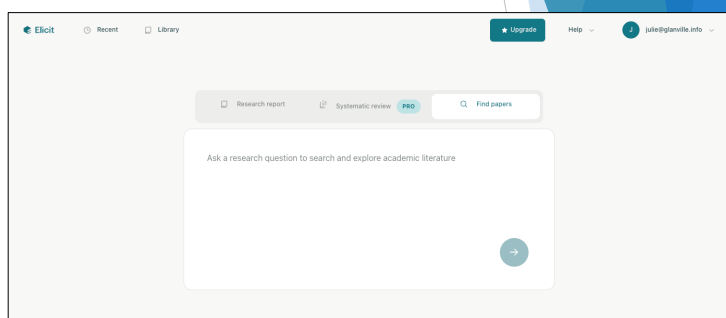
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Elicit

- ▶ <https://elicit.com/>
- ▶ Queries Semantic scholar
- ▶ Useful for
 - ▶ Find papers search option (i.e. no summaries)
 - ▶ Can select data to review in detail e.g. intervention
 - ▶ Concept analysis
 - ▶ All disciplines
- ▶ Export is not free
- ▶ Elicit publications are included on my webinar website



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Summary table

Tool	Useful for	Added value
Scispace	Study finding Concept, theme identification	<ul style="list-style-type: none"> • Concept finding • Free export in RIS, CSV
Perplexity	Grey literature identification	
LitSense	Study finding Biomedical focus	<ul style="list-style-type: none"> • Shows sentence context • Can limit by part of abstract/paper
Ai2 Paper Finder	Study finding without the summaries	<ul style="list-style-type: none"> • Full text searching
Consensus	Study finding Theme identification	<ul style="list-style-type: none"> • Provides additional questions • Free export in RIS, CSV
Elicit	Study finding Theme identification	<ul style="list-style-type: none"> • Topic analysis • Concept analysis
EvidenceHunt	Study finding	<ul style="list-style-type: none"> • Biomedical focus • Highlighted PICO elements in records
Undermind	Study finding Completeness estimate	<ul style="list-style-type: none"> • Discovery progress - completeness estimate • Results categorisations

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AI built into search tools

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2Dsearch

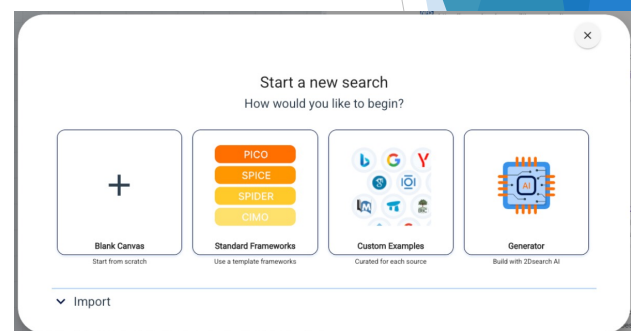
- ▶ <https://www.2dsearch.com/>
- ▶ This is a strategy building tool
- ▶ Has an option to generate a search strategy from a natural language question (Generator)
- ▶ User evaluation:
 - ▶ Svarre, T, Russell-Rose, T. An evaluation of a visual interface for supporting query formulation in scholarly searching. *Journal of Librarianship and Information Science*. 2024;0(0):09610006241291603.

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2Dsearch

- ▶ You can identify more terms by using snowballing
 - ▶ Or by clicking on terms to get more suggested keywords using LLMs and MeSH
- ▶ It produces a nice search report
- ▶ It offers the ability to move concepts around and combine them in different ways

Q: the effects and adverse effects of green spaces or parks in cities on mental health in city dwellers

Select your Key Concepts

the effects and adverse effects of green spaces or parks in cities on mental health in city dwellers

Select your Keywords

Cities

☒ cities ☒ suburbs ☐ provinces ☒ towns ☐ places ☐ communities ☒ neighborhoods ☐ areas

☐ regions ☐ villages ☒ city

Mental Health

☒ mental health ☒ psychiatric ☐ physical ☐ healthcare ☐ illness ☐ education ☐ medical

☐ patients ☐ illnesses ☐ patient ☐ care

City Dwellers

☒ city dwellers ☒ suburbs ☐ slum ☒ urban ☒ neighborhoods ☒ cities ☒ downtown

☒ outskirts ☒ town ☐ inhabitants ☐ residents

Task Tip: Select suggested keywords

Select keywords to include in your search, then click GENERATE to populate the canvas.

← GENERATE

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2D search: AI to convert questions into searches

Q: the effects and adverse effects of green spaces or parks in cities on mental health in city dwellers

Select your Key Concepts

the effects and adverse effects of green spaces or parks in cities on mental health in city dwellers

Select your Keywords

Cities

☒ cities ☒ suburbs ☐ provinces ☒ towns ☐ places ☐ communities ☒ neighborhoods ☐ areas

☐ regions ☐ villages ☒ city

Mental Health

☒ mental health ☒ psychiatric ☐ physical ☐ healthcare ☐ illness ☐ education ☐ medical

☐ patients ☐ illnesses ☐ patient ☐ care

City Dwellers

☒ city dwellers ☒ suburbs ☐ slum ☒ urban ☒ neighborhoods ☒ cities ☒ downtown

☒ outskirts ☒ town ☐ inhabitants ☐ residents

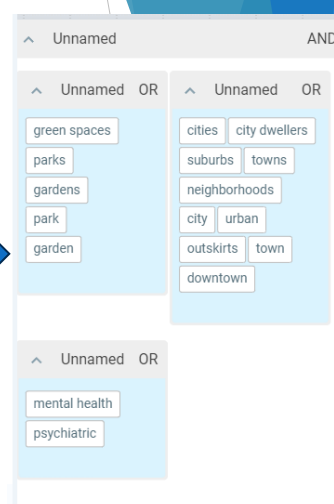
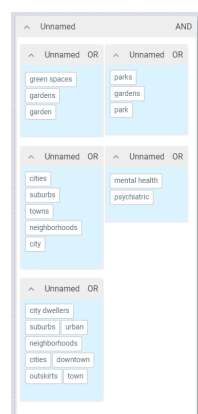
Task Tip: Select suggested keywords

Select keywords to include in your search, then click GENERATE to populate the canvas.

←

GENERATE

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AI tools within discovery services/database interfaces

- ▶ Database providers are offering AI-informed research discovery tools as add-ons or features within their standard interfaces, for example
 - ▶ Elsevier's ClinicalKey AI (<https://www.elsevier.com/en-gb/products/clinicalkey/clinicalkey-ai>)
 - ▶ Scopus AI (<https://www.elsevier.com/en-gb/products/scopus/scopus-ai>)
- ▶ If they are offered by your provider, then they are worth exploring to evaluate how they may support strategy development
- ▶ Challenging to explore as most are available behind paywalls
- ▶ There is little research on the differences between such tools and it is also a fast-moving area
 - ▶ Check out Aaron Tay's recent comparison of Primo Research Assistant, Web of Science Research Assistant and Scopus AI

Aaron Tay

<https://musingsaboutlibrarianship.blogspot.com/2025/04/the-reproducibility-and.html>

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Further reading/watching

- ▶ Suggestions on my webinar website
- ▶ <https://start.me/p/ogk70m/evidence-synthesis-ireland-webinar>

The screenshot shows a webpage titled "Evidence Synthesis Ireland webinar". It includes sections for "AI position statements/guidance", "Further reading/watching", and a "Table of selected list of tools and features".

AI position statements/guidance

Responsible AI in Evidence Synthesis (RAISE): guidance and recommendations v0.8 Draft for consultation

29 May 2025

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Other training activities: <https://reasts.org/open/julie-glanville>

Use of AI in evidence generation: NICE position statement

<https://www.nice.org.uk/about/what-we-do/our-research-work/ai-in-evidence-generation-nice-position-statement>

Cochrane Handbook. See Technical supplement to the searching section 3.2.3 chapter.

<https://training.cochrane.org/handbook/chapter-03-technical-supplement>

ESIC (Evidence Synthesis Infrastructure Collaborative) reports

<https://evidence-synthesis.atsion.net/workspaces/ESIC/pages/ESIC-2024-04-20-report>

Table of selected list of tools and features

Tool	Features
Study finding	• Provides additional questions
Theme identification	• Free export to RIS, CSV
Study finding	• Concept finding
Pruning concepts	• Free export to RIS, CSV
Grey literature identification	• Topic analysis
Study finding	• Concept analysis
Theme identification	• Shows sentence context
Study finding	• Can link to part of abstract/paper
Biomedical focus	• Biomedical focus
Study finding	• Highlighted PCC shows in results
Complexity estimate	• Document progress (updates and results)
Study finding	• Full text searching

Monash University AI Tools decision matrix

<https://monashhealth.libguides.com/ai/ai-tool-decision-matrix>

Perplexity research papers

Further reading/watching

How can AI-based automation tools assist with systematic searching?

Cochrane training webinar delivered Jan 2025.

<https://training.cochrane.org/automation/ai-ai-based-automation-tools-assist-with-systematic-searching>

Cochrane Methods Artificial Intelligence (Joint Methods Group between Cochrane, the Campbell Collaboration, JBI and the Collaboration for Environmental Evidence (CEE))

<https://methods.cochrane.org/>

Use Tipovoid: The Role of Generative AI in Search Strategy Development, HTA seminar.

<https://www.youtube.com/watch?v=AD4p4tE3U>

Aaron Tay blog <https://musingsaboutlibrarianship.blogspot.com>

Fahad Shokran's YouTube videos.

<https://www.youtube.com/@fahadshokran>

JAMA special issue on AI, 2024.

<https://doi.org/10.1001/jama.2024.10000>

Brigham Young University Libraries. AI for research on May - 30 May 2024. Recordings and transcripts.

<https://www.byu.edu/ai-for-research>

2024 Information Meeting in Qeios. All presentations are now publicly available, as well as a video.

<https://www.qeios.com/read/2024-05-01>

AI Tool report <https://ai-tool-report.com/>

PNi Bradley's blogs and courses

<https://www.pni.co.uk/>

PCCQAI webinars

<https://www.pccqai.org/>

Selected Research

- Clark, J, Barron, B, Albarquni, L, Byambayev, O, Jowsey, A. Generative artificial intelligence use in evidence synthesis systematic review. Research Synthesis Methods, 2023;1-10.
- Goren, C. Tech Showdown - AI Search Tools Special Issue. Journal of Health Information Systems, 2024;1-10.

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Summary

- ▶ Many new initiatives are exploring/evaluating AI tools for evidence synthesis
- ▶ Generative AI tools like ChatGPT or Claude can help suggest concepts and search structure
 - ▶ But are not yet useful as a mainstream approach for comprehensive research identification
- ▶ AI integrated search in the academic literature can help to identify additional studies and help with identifying concepts in a literature
- ▶ Limited research exists on differences between AI tools, although bibliographic collections are available
- ▶ Rapid evolution means evaluation is challenging - which tools will last?



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Questions/discussion

- ▶ Please put links to tools/blogs/videos you have found valuable in the Chat
- ▶ I will add them to the webinar webpage after the meeting
- ▶ <https://start.me/p/ogk7Om/evidence-synthesis-ireland-webinar>



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Thank you

- ▶ Resource list/links/publications
 - ▶ <https://start.me/p/ogK7Om/evidence-synthesis-ireland-webinar>
- ▶ Julie Glanville, Independent Consultant in Information Retrieval
 - ▶ Glanville.info, York, UK
 - ▶ julie@glanville.info

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