



Synthesising the literature: A Guide for Health Librarians

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Acknowledgement of Country

We are presenting today from the traditional lands of the Wurundjeri people of the Kulin nation.

We pay our respects to Elders past and present and extend that respect to Aboriginal and Torres Strait Islander peoples here today.



Outline

- Introduction
- What is synthesis?
- Analysis vs Synthesis
- Step-by-step guide to synthesis
- Summary



Disclaimer

The content presented in this session is intended for informational purposes only and should not be considered a definitive research methodology. While I will outline practical adaptations of systematic review steps, it is crucial to refer to established protocols for publication and original systematic reviews for comprehensive guidance. The synthesis process discussed here is designed for practical application and may not adhere strictly to formal research standards. Participants are encouraged to use discretion and consult relevant literature when implementing these strategies.



Introduction

Challenges:

- Limited time for research as practitioners.
- Medical librarians excel in searching and providing information, but integrating research into daily operations is complex.

Goal: Learn synthesis techniques to inform evidence-based decisions in library contexts.

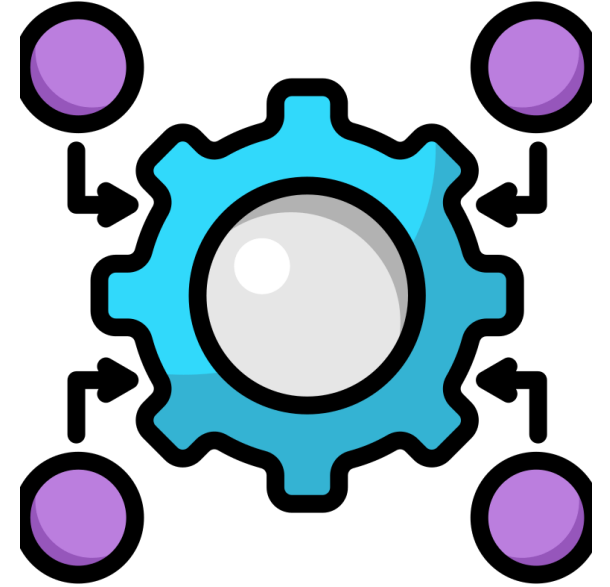
Focus: Practical, step-by-step synthesis methods for health librarians.

Approach: Not an academic perspective—focused on applying synthesis in real-world settings.



Synthesis

Synthesis going beyond simply summarising others' statements and findings.



Synthesis

Bringing together information to present a cohesive assessment of the current state of knowledge in relation to your research aims and questions

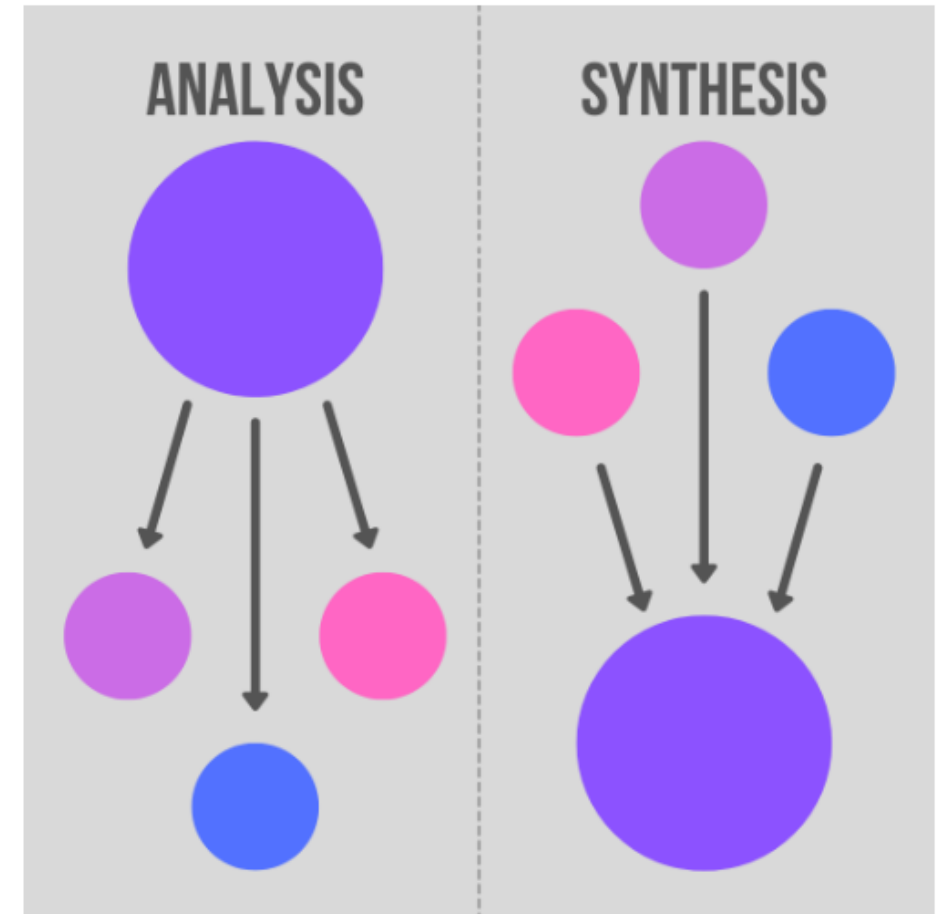
- What is known
- What is not known
- Where more research is needed



Analysis vs Synthesis

When reading an article or book, you need to extract specific concepts from the larger text to fully understand it. This process is known as analysing.

When you synthesise information, you take specific concepts and consider them together to understand how they compare/contrast and how they relate to one another. Synthesis involves combining multiple elements to create a whole.



Reference:

<https://library.defiance.edu/synthesis#:~:text=Synthesis%20is%20a%20form%20of,order%20to%20make%20your%20point.>

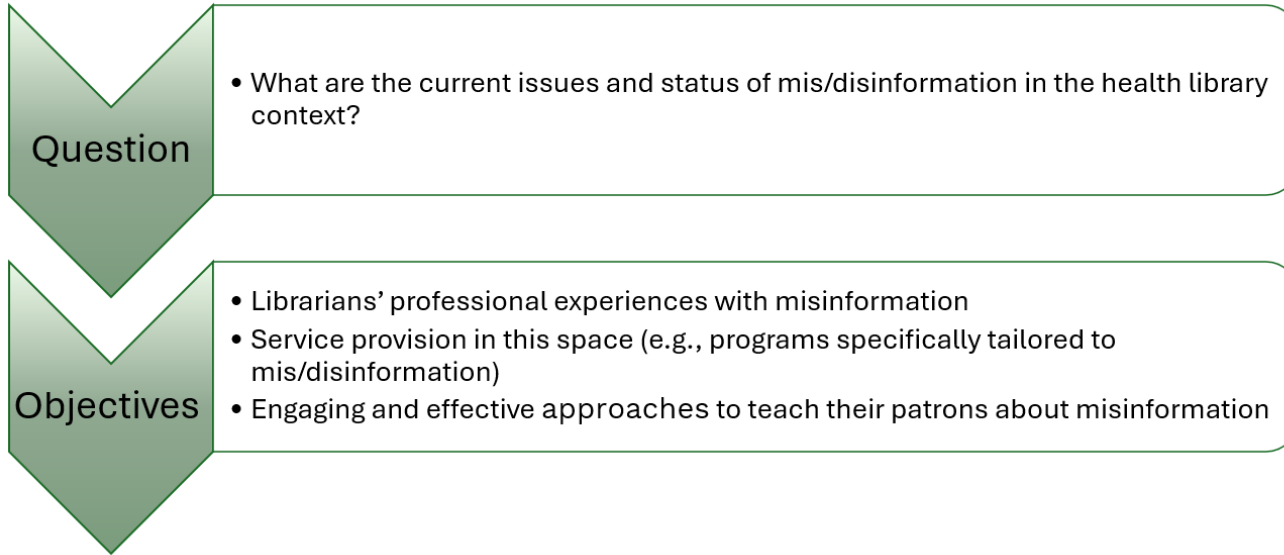


Before synthesis

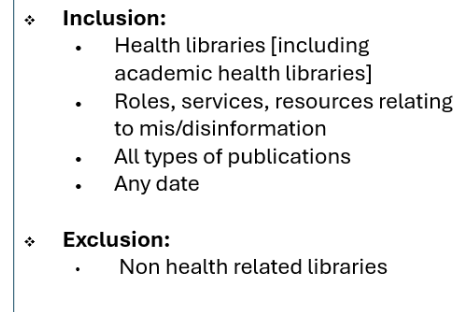
- Identify the research question
- Consider scope:
 - Broad scope
 - Narrow scope
- Question frameworks such as PICO or SPIDER
- Define inclusion and exclusion criteria
- Develop protocol or research plan
- Search for studies
- Select studies



Example: Research question and objectives



- Population (P) – health librarians/libraries
- Concept (C) - mis/disinformation
- Context (C) – infodemic, publishing, social media/internet, news feeds, socio-political context/setting

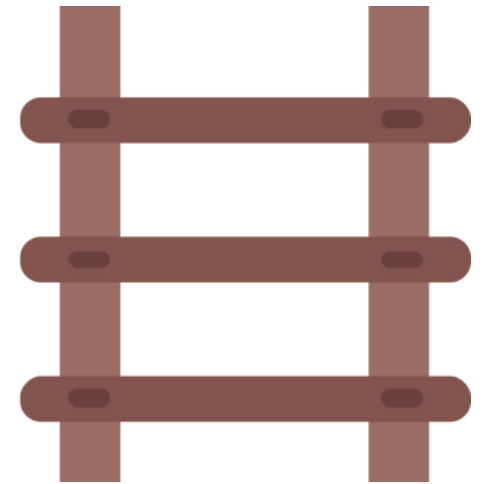


Dehghani, M., & Harris, L. (2023). Current issues and status of mis/disinformation in the health library context: a rapid literature review. *Journal of Health Information and Libraries Australasia*, 4(3), 9-25.



Step-by-step guide to synthesis

- Revisit the review protocol or research plan
- Review extracted data
- Reflect on individual study findings
- Describe the data narratively
- Generate new ideas



Revisit the review protocol or research plan

Reflect on your initial plan for synthesis

Adaptations: If adjustments to the protocol are needed

- Document all changes carefully
- Justify why these changes were necessary



Review extracted data

+ H1	General information	+ Aa	Publication date
+ Aa	Study ID	+ H2	Participants
+ Aa	Title	+ Aa	Population description
+ Aa	Lead author contact details	+ Aa	Inclusion criteria
+ Aa	Journal title	+ Aa	Exclusion criteria
+ ⊖	Country in which the study conducted	+ ⊖	Method of recruitment of participants
	- United States		- Phone
	- UK		- Mail
	- Canada		- Voluntary
	- Australia		- Other
	- Other		
+ Aa	Notes	+ Aa	Total number of participants
+ H1	Characteristics of included studies	+ Aa	Definition of mis/disinformation
+ H2	Methods	+ Aa	Types of mis/disinformation
+ Aa	Aim of study	+ Aa	Role of Health Science Librarian
+ ⊖	Study design/type of publication	+ Aa	Type of library
	- Review - general	+ Aa	Type of activity/tasks/action taken to combat mis/disinformation
	- Exploratory study	+ Aa	Suggestions or recommendations or solutions offered to combat
	- Cohort study		
	- Report		
	- Cross sectional study		
	- Systematic review		
	- Qualitative research		
	- Prevalence study		
	- Text and opinion		
	- Other		

Data extraction

We extracted information relating to

- Definitions of mis/disinformation
- Types of mis/disinformation
- Actions taken to combat mis/disinformation
- Suggestions and recommendations to combat misinformation



Using a synthesis matrix (sample)

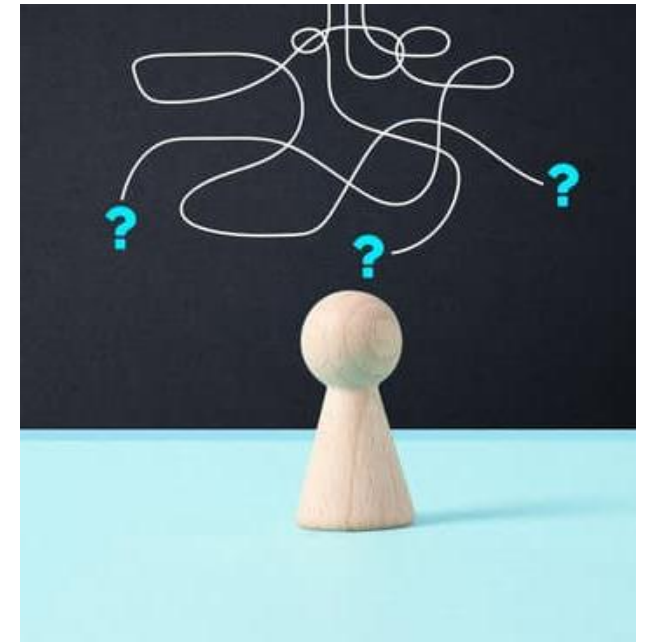
Sources	Definitions of mis/disinformation	Types of mis/disinformation	Actions taken	Suggestions and recommendations
Herrero-Diz & Lopez-Rufino(2021)				
Jaeger & Taylor (2021)				
Brown(2008)				



Reflect on the initial findings

Ask yourself:

- What are you seeing as common themes across studies?
- What type of data is most predominant?
- How might readers of your review best make sense of these findings in aggregate?
- Read and thoughtfully reflect on the findings several times, assessing for the similarities and differences, patterns, and themes.



Describe the data narratively

- Generating a narrative description, serving as a qualitative component.
- **Structure:**
 - Combines tabular and written descriptive sections.
 - Written descriptions complement tabular data.
- Highlights qualitatively combined and summarised findings.
- Present characteristics, strengths & limitations, and patterns noted across included studies.
- Detail relationships between study variables.
- Assess for agreement and disagreement among studies.



The types of mis/disinformation that were referred to in the articles

The articles addressed various forms of misinformation, which we categorised into three groups: definitions, COVID-19-related misinformation, and broader perspectives (see Table 1).

Definitions

Firstly, authors referred to types of mis/disinformation that fell under definitions, synonyms, or categories of misinformation, encompassing terms such as falsehoods, deceptive or baseless information, misinformation circulated online or on social media, fake news, and generally any content characterised as disinformative, pseudohistorical, or pseudoscientific (Bianchini et al., 2019; Herrero-Diz & Lopez-Rufino, 2021; Jaeger & Taylor, 2021; Schneider et al., 2020).

COVID-19-related misinformation

Table 1. Types of mis/disinformation

Category	Type of misinformation
Definitions	<ul style="list-style-type: none"> • Falsehoods • Deceptive information • Unfounded information • False information online • Fake news • Deep fake and cheap fake videos • Misinformation in social media • Any type of content that is <u>disinformative</u>, pseudohistorical, and pseudoscientific
COVID-19	<ul style="list-style-type: none"> • Infodemic • Harmful, false claims related to the virus • False claims about transmission, treatment & prevention • Pseudoscientific health therapies • Conspiracy theories • Algorithms reinforcing messages • State and local politicians... asserted that the virus is a hoax or overhyped • Secrecy around statistics (Brazil government) • Disinformation campaigns from Russia • Inadequate peer review
Broader perspectives	<ul style="list-style-type: none"> • Medical myths, urban myths • Overproduction of digital content • Lack of access to quality health information • Complementary and alternative medicine – not supported by scientific evidence (<u>MeSH</u> definition) • Difference among experts and layperson’s assessments (CAM) • State-mandated misinformation re abortion safety and risks • AI, and bots that mimic academic writing • Predatory publishing • Use of unreliable sources in academic papers • Preprints

Generate new ideas

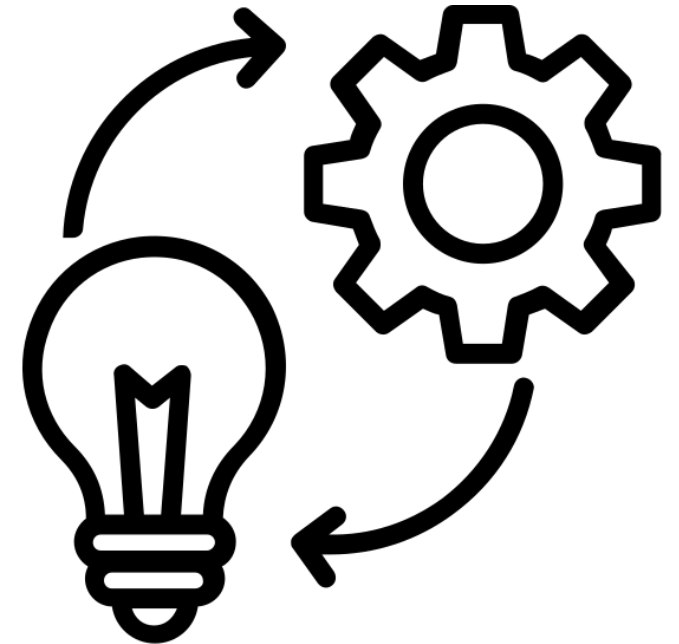
Summarise findings and generate new ideas in your own words.

Reflection:

- Review completed work and assess findings both individually and collectively.
- Identify what adds the most value to your topic or field.

Challenge:

- Synthesising diverse literature can be difficult.
- Focus on your own insights, not just quoting others—emphasise your novel contributions.



Library practices	Representation	Examples from scoping review
Source evaluation	represents actions focused on the information source.	<ul style="list-style-type: none"> Identifying predatory journals Creating blacklists & whitelists, e.g. Beall's list Contributions to DOAJ
Information literacy	represents actions/ training that provided to patrons/staff and focused on identifying, finding, evaluating, applying, and acknowledging sources of information)	<ul style="list-style-type: none"> Training staff/faculty on identifying predatory journals Train students to use EBM resources to answer clinical questions Teaching information literacy to high school students and general public
Research	represents actions focused on involving in research	<ul style="list-style-type: none"> Content analysis of websites related to CAM for cancer Systematic review to dispel medical myth Creating search strategies
Collaboration	represents actions focused on collaboration with different stakeholders	<ul style="list-style-type: none"> Italian librarians collaborated with the National Health Service Health Informatics Promotion Project to spread awareness of COVID-19

Summary: Core Concepts

- Literature synthesis is the foundation of a literature review.
- It transforms extracted data into new understanding.
- Identify gaps in data to inform future research steps.
- Synthesised data guides researchers in designing future studies.



Summary: Step-by-Step Approach

- Begin with a structured process
- Revisit the review protocol
- Review and consider findings as a whole, not just individual studies.
- Pause and Reflect: Take time to contemplate your findings.



Summary: Step-by-Step Approach

- Discuss Ideas with Colleagues
- Describe the data narratively
- Develop novel interpretations through analysis and reflection.
- Seek constructive feedback



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Thank you!

Questions?

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