

Research Methods and Professional Development ACFA7004

Literature review

Literature Review



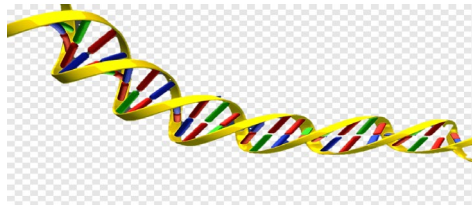
Source: <https://www.grammarly.com/blog/literature-review/>

- A literature review is a systematic, explicit, and repeatable approach for finding, assessing, and synthesizing the current body of completed and documented work done by researchers, academics, and practitioners (Fink, 2019).
- Essential component in any type of research.
- Ongoing and influences every phase of the research (Majam and Theron 2006).
- For a successful research, the literature needs to be systematically analyzed and effectively evaluated.

Source: <http://100bookninja.wordpress.com/2010/07/19/a-little-reading-inspiration/>

Importance of literature review

- Main strand in a well-planned and executed research process.

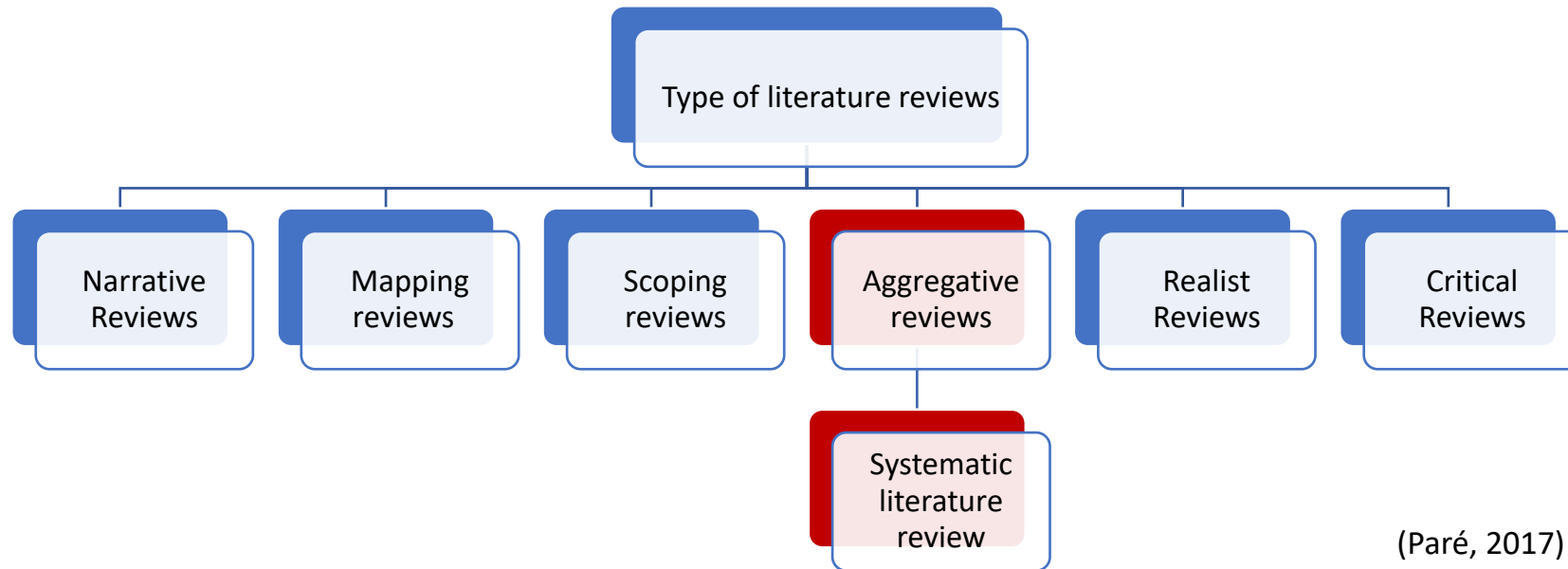


Source: <https://www.pngwing.com/es/free-png-becjy>

- To analyze, interpret, and critically assess the existing body of knowledge.
- To discover the pattern of prior results, breadth and depth of the current knowledge and identify the gap for further exploration.

(Mohamed Shaffril, Samsuddin and Abu Samah 2021)

Types of literature reviews



Narrative literature review

- Traditional way of reviewing the extant of literature.
- Qualitative interpretation of prior knowledge.
- Summarize or synthesize what has been written on a particular topic
- Reviewers may selectively ignore or limit the attention paid to certain studies (subjective)
- Very useful to gather information about a specific subject area and synthesize it.
- Helps to identify research gap.
- Best practice is to use a generic framework or structured approach to conduct the review.

Mapping/Descriptive review

- To determine any interpretable patterns or trends in a particular research topic
- Employ a systematic and transparent process that involves finding, assessing, and classifying studies.

Scoping review

- Scoping reviews make an effort to offer a preliminary assessment of the possible scope and structure of the body of existing literature on an emerging topic.
- The whole point of scoping the field is to be as comprehensive as possible, including grey literature.
 - Grey literature includes a range of documents not controlled by commercial publishing organisations.

Realist Reviews

- Theory-driven approach were developed to support, improve, or add to traditional systematic reviews by interpreting heterogeneous data on sophisticated interventions used in a variety of contexts in a way that helps guide policy decisions.

Critical Reviews

Critical reviews seek to offer an interpretive analysis and critical evaluation of the body of literature already written on a given subject of interest in order to highlight important issues pertaining to theories, hypotheses, research methodologies, and/or results, as well as any weaknesses, contradictions, controversies, and/or other significant issues.

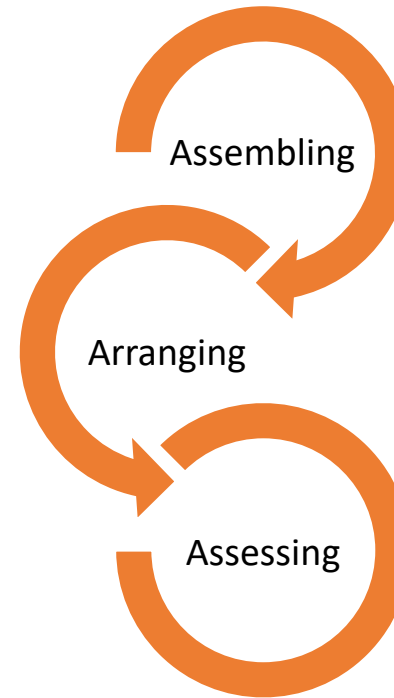
E.g. critical review that assessed the methodological quality of prior systematic review of online fake news detection studies.

Systematic literature review

- A systematic review is a review of a clearly articulated question that use systematic and explicit methods to identify, select, and critically evaluate relevant research as well as gather and analyze data from the studies that are included in the review (Needleman 2002).
- A “systematic review” is a high-level assessment of existing evidence that aims to provide a clear response to a specific question.
- Systematic review aim to mitigate bias by using explicit, systematic methods documented in advance with a protocol.

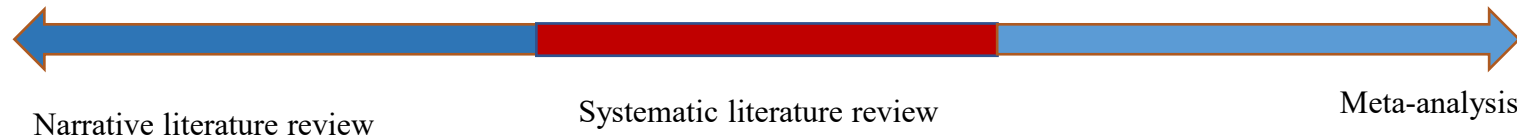
Systematic literature review

- Systematic literature review encompasses the process of “Assembling”, “arranging” and “assessing” existing literature in a review domain (Paul *et al.* 2021).



Systematic literature review Vs Narrative

- The narrative review is the "conventional" method of examining the body of literature, and it leans heavily toward a qualitative interpretation of existing knowledge.
- Meta-analysis refers to the use of statistical techniques to synthesize results across multiple primary studies



Systematic literature review Vs Narrative

Systematic

Narrative



Focused question

Broad in scope



**Multiple data sources,
comprehensive sources**

**Relevant literature may be missed.
Subjective.**



**Specific guideline for search criteria
(inclusion and exclusion criteria)**

Search criteria are not usually specified



Critical appraisal

May not consider the quality of included studies



Synthesis based on all evidence

Synthesis based on sample

Literature review – work flow

1. Data extraction

- Keywords, select electronic databases

2. Prepare a framework for organizing and interpreting the collected data

- To structure the review process

3. Learn from the literature

- gain valuable insights and perspectives from existing literature

4. Classify the literature in different theme/clusters

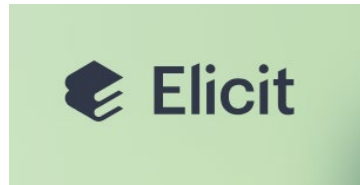
- To identify the research gap

5. Literature synthesis

- Synthesis the findings from the literature and develop theories to guide your research

AI tools to conduct literature review

- **SCISPACE** - Learning and understanding



- **Powerdrill** - analysis and classifying



- ChatGPT – Synthesis or theory development



ChatGPT

[Top 3 AI Tools for Literature Review \(youtube.com\)](https://www.youtube.com/watch?v=...)

Phases of systematic literature review



(Needleman 2002)

Guideline for systematic review

Meta-analysis Of Observational Studies in Epidemiology (MOOSE) (Stroup et al., 2000)

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)(Moher et al. 2009).

Meta-Analysis Reporting Standards (MARS) (American Psychological Association, 2010).

Scientific Procedures And Rationales for Systematic Literature Reviews (SPAR-4-SLR) (Paul et al. 2021).

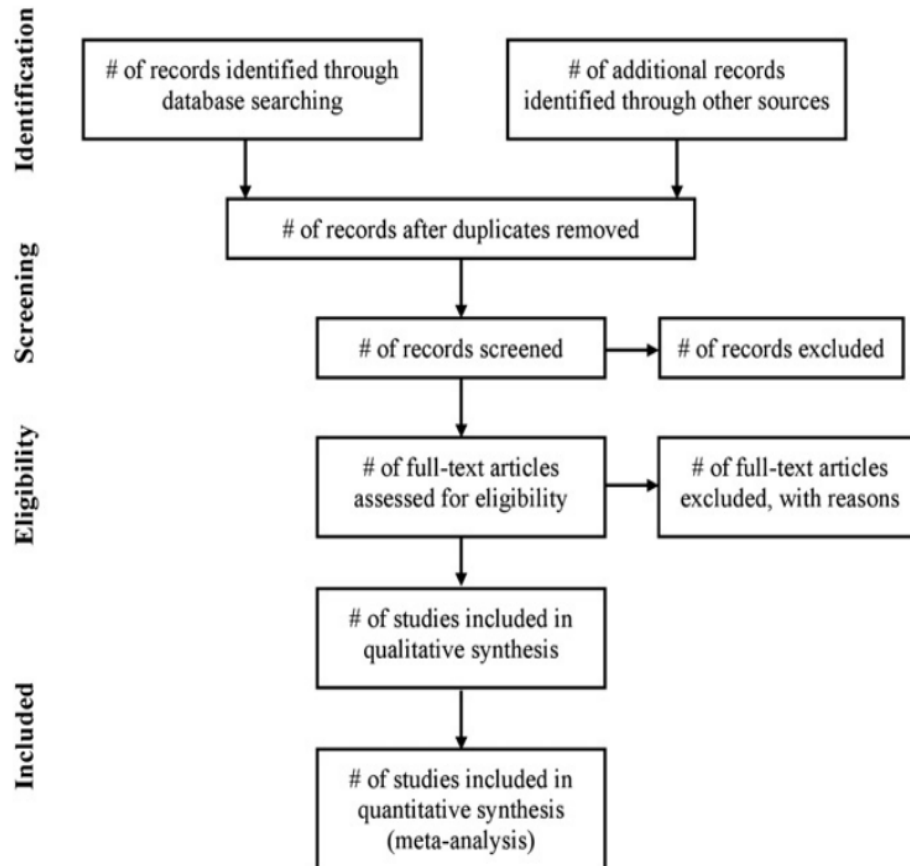
Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

PRISMA statement consists of a 27-item check list and a four-phase flow diagram

The Title
The objective
The search string
Eligibility criteria • Years considered • Language • Publication type (journal conference paper)
Information sources • Databases
Study selection process • Screening • Downloading full text • Inclusion of studies based on eligibility criteria
Data collection process • Plotted forms • Role of independent researchers
Data items • List and define variables
Final data collection process
Synthesis methods
Results
Discussion
Other Information

[PRISMA Checklist](#)

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



- Four phase flow diagram (Moher *et al.* 2009)

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

- Example for search string (database: Web of science)
 - *((color image segment*) AND (cluster* OR salien*)) OR (salien* detect*) or (salien* segment*)) and 2022 or 2021 or 2020 or 2019 or 2018 or 2017 or 2016 or 2015 or 2014 or 2013 or 2012 (Publication Years) and Articles (Document Types) and English (Languages).*

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

ID	Criterion
Exclusion criteria	
EC1	Papers in which only the abstract is available
EC2	Review and conference papers
EC3	Duplicates records
EC4	Papers are not written in the English language
EC5	Papers are not aimed at the color image segmentation
EC6	Papers do not apply the clustering or saliency methods for image segmentation
EC7	Papers do not directly apply object detection or segmentation
EC8	Papers that used non-image data for segmentation
EC9	Papers do not report the segmentation evaluation metrics in terms of average precision, recall, and F-Score.
Inclusion criteria	
IC1	Articles published in English.
IC2	Papers that clearly stated the segmentation methods and the techniques used for image segmentation.
IC3	Papers that provided clear information about the image database and the number of images used for evaluation.
IC4	Papers that provided the segmentation results in terms of average precision, recall, and F-Score.

- **Example for inclusion and exclusion criteria**

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

#	Extraction element	Contents	Type
General Information			
1	Title	Title of the article	Text
2	Author	The authors of the article	Text
3	Country	The country of the research institute	Text
4	Year	The year of publication	Numeric
Description of the study			
5	Segmentation approach	☐ Supervised ☐ Unsupervised	Classes
6	Segmentation method	☐ Clustering ☐ Saliency ☐ Clustering and saliency	Classes
7	Segmentation technique	For instance, K-Means Algorithm, SLIC, Mean shift, Deep learning, bottom-up saliency, and top-down saliency.	Text
8	Preprocessing stage is implemented	☐ Yes ☐ No	Classes
9	Unit of processing	☐ Pixel ☐ Patch ☐ Region	Classes
10	Dataset	List of the dataset used for evaluation	Text
11	Number of datasets	Number of datasets used for the evaluation	Numeric
12	Number of images	Number of images used for the evaluation	Numeric
13	Precision	The average precision of the produced results	Numeric
14	Recall	The average recall of the produced results	Numeric
15	F-Score	The average F-Score of the produced results	Numeric

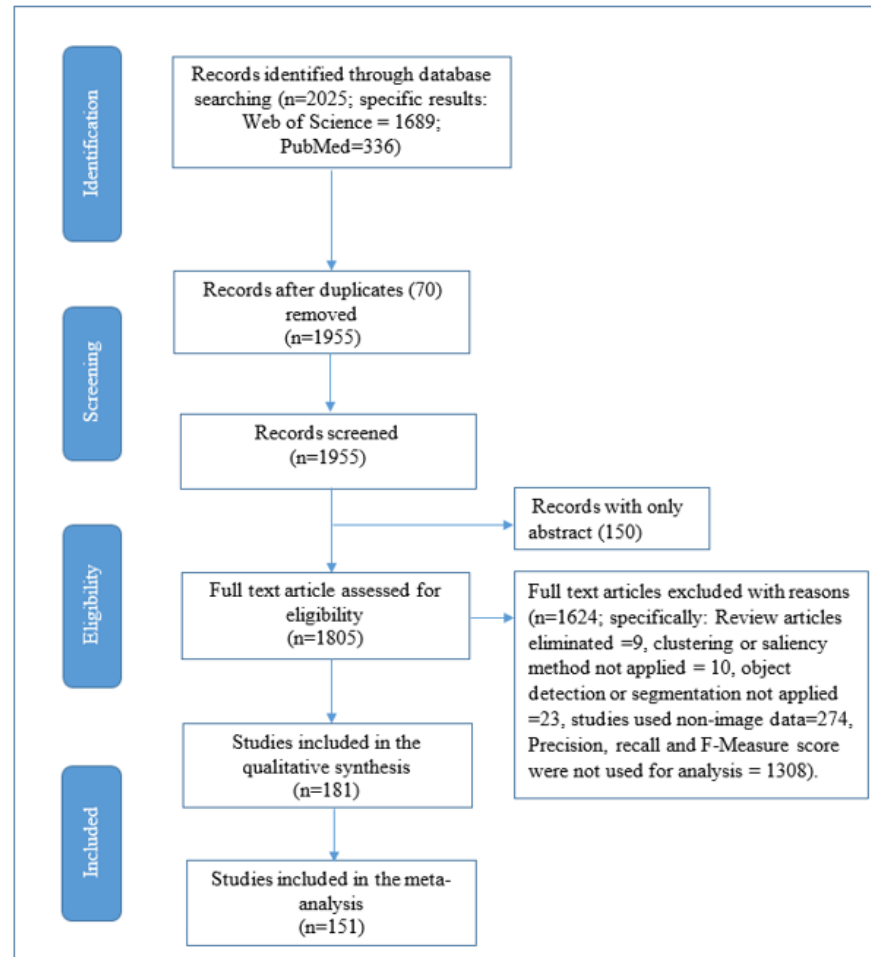
- Example for search variables used to extract the relevant information

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

Example: Four phase flow diagram

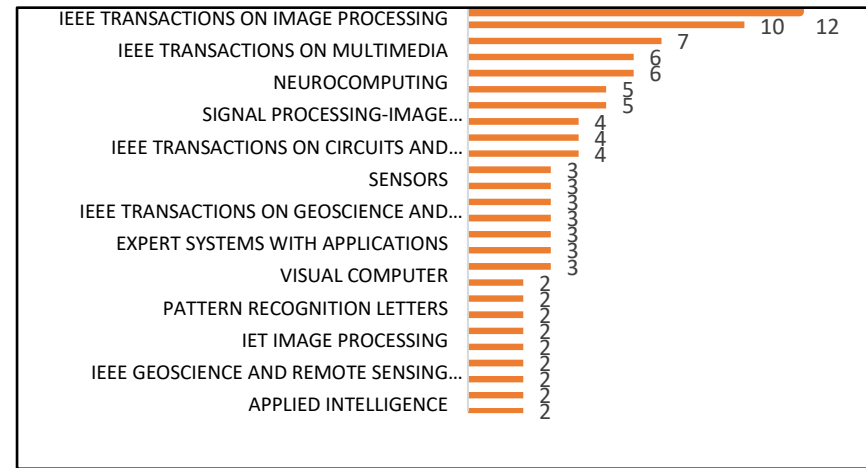
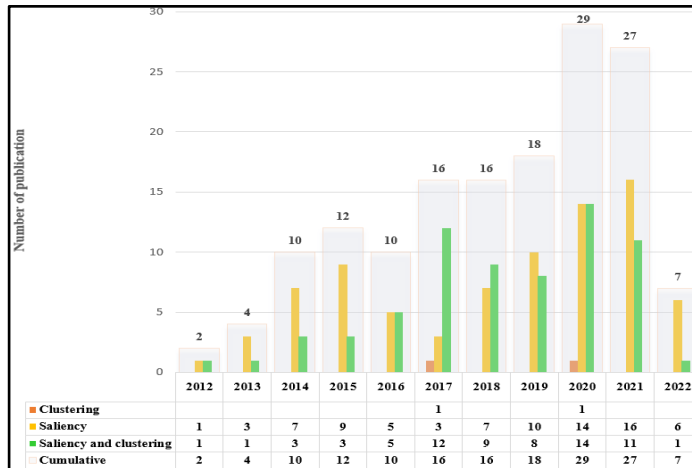
Identified studies

Included studies



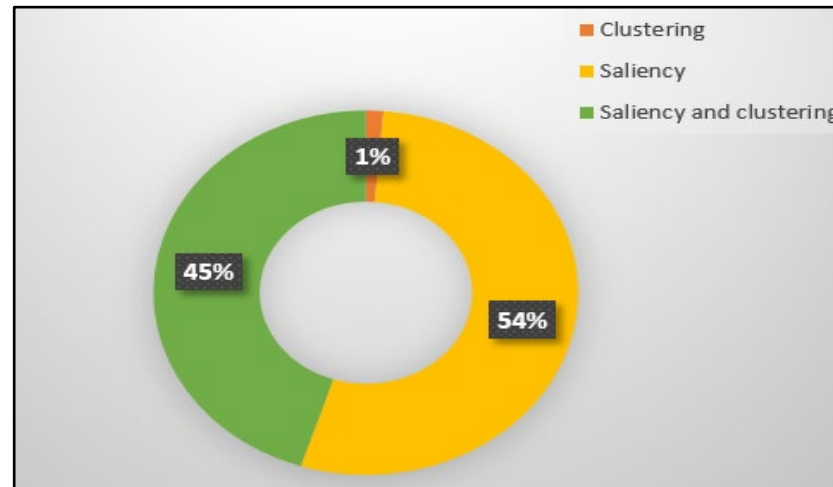
Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

- Sample results (General characteristics of included studies)



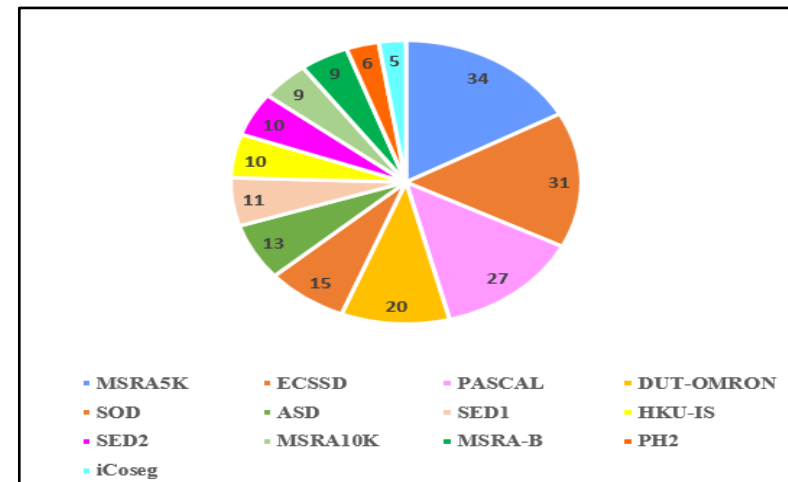
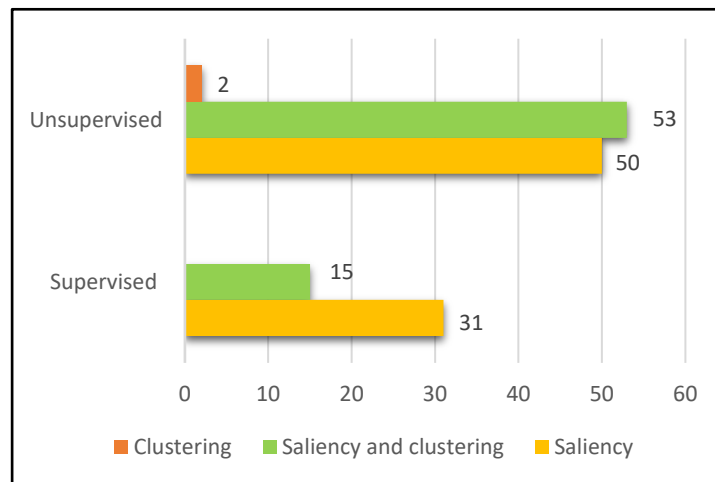
Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

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

- Sample results (General characteristics of included studies)



PRACTICAL

Rayyan – (rayyan.ai)

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PRACTICAL

- Supported import formats on Rayyan

Migration Guides

▼ Supported formats

Upload references in one of these text formats:

- EndNote Export ([download example.enw](#))
- Refman/RIS ([download example.ris](#))
- BibTeX ([download example.bib](#))
- CSV ([download example.csv](#))
- PubMed XML ([download example.xml](#))
- New PubMed Format ([download example.nbib](#))
- Web of Science/CIW ([download example.ciw](#))

Additionally, you can embed any of the above text files into:

- Text ([download example.txt](#))
- Microsoft Word ([download example.docx](#))
- GZ compressed file ([download example.ris.gz](#) or [evidencelive15.ris.gz](#))

Finally, you can group any number of the above files in a single ZIP archive ([download example.zip](#))

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