

How to conduct a systematic review

Koutsos Thomas*, Menexes Georgios*

*School of Agriculture, Faculty of Agriculture, Forestry and Natural Environment,
Aristotle University of Thessaloniki, Thessaloniki, Hellas

Abstract

The need for performing more objective and fuller reviews of the existing literature on a particular scientific topic has led to the gradual adoption and acceptance of the method with the term "Systematic Review". Until recently, the most commonly used method of reviewing the bibliography was the narrative review. However, this review method has been criticized for bias and for directed presentation of the selected citations due to the high subjectivity involved during the process. Carrying out a Systematic Review is more time consuming than the narrative method, however it is necessary before conducting a new study to capture global trends and get the information needed for the scientific advances made up to that point. This poster presents the most important steps for conducting successfully a Systematic Review.

Steps for performing a Systematic Review^[1]

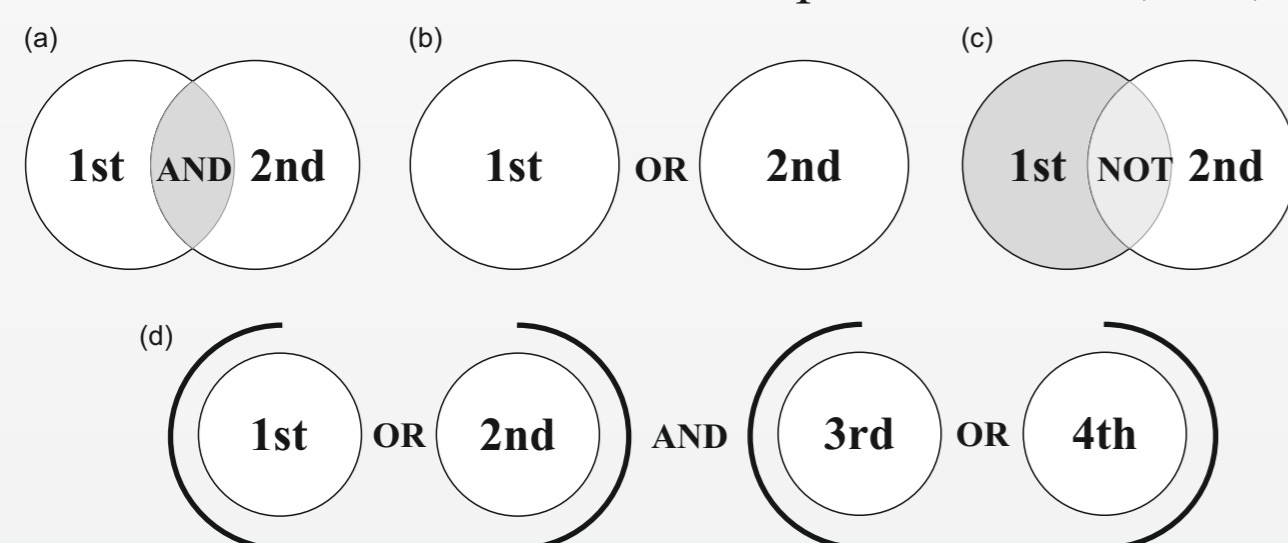
I. Scoping

1. Development of a Review Protocol (define a focused Research Question)
2. Identification of a few relevant studies for a pilot study
3. Search for previous systematic reviews on this subject

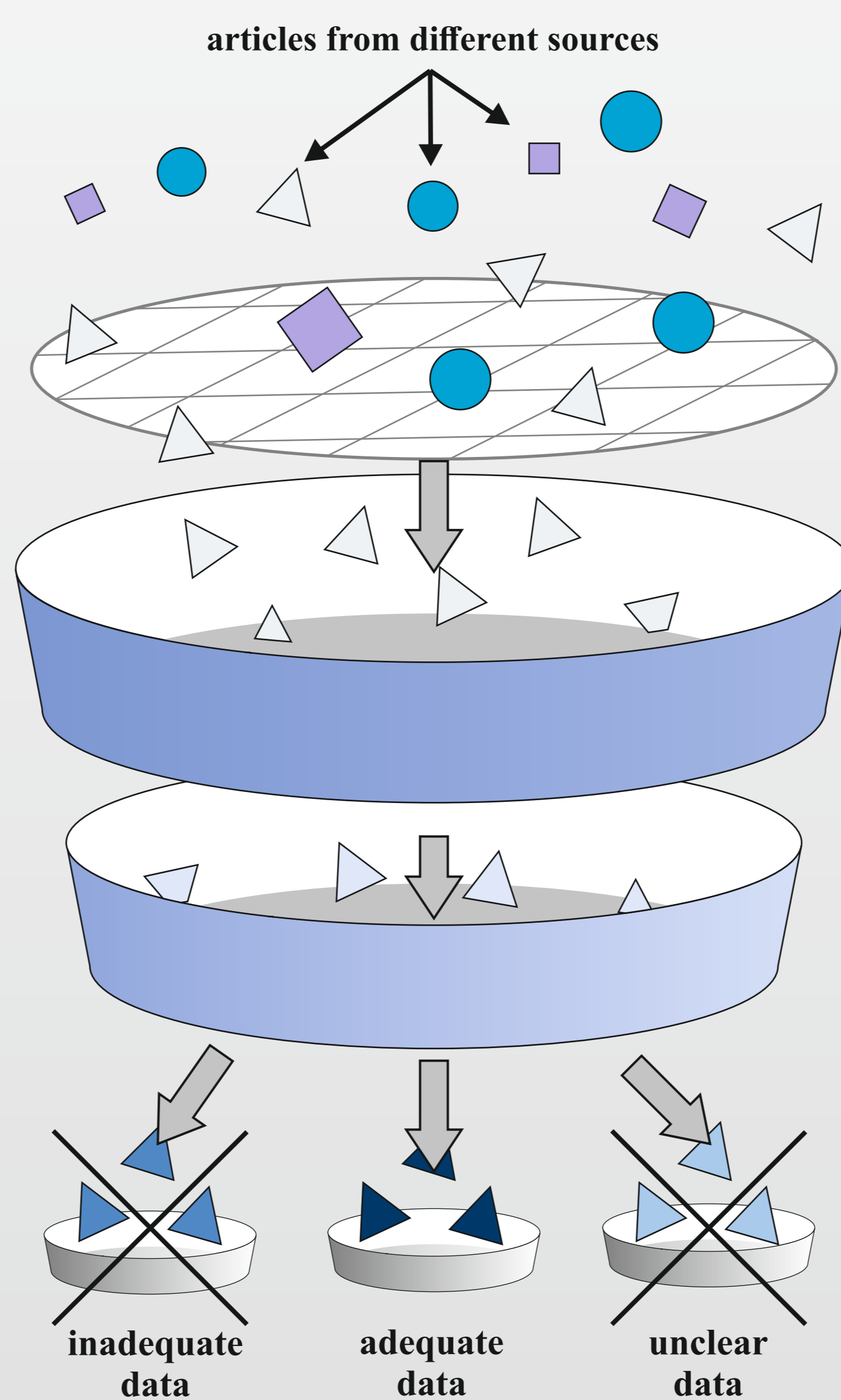
II. Planning

1. Development of the search strategy
2. Identification of appropriate databases and sources (such as Web of Science, Scopus and ScienceDirect).
3. Use of boolean operators for developing the search strategy

The use of the basic boolean search operators: AND, OR, AND



Systematic Review Process Diagram^[2]



III. Identification/Searching

1. Apply the defined search strategy
2. Check the resulted articles
3. Change of search strategy if needed
4. Perform additional searches
5. Look for additional sources of articles
6. Add manually additional articles

IV. Screening

1. Export citations form digital sources
2. Import citations into a citation manager (such as Mendeley, Zotero, RefWorks)
3. Remove duplicates
4. Update article information
5. Check the selected articles

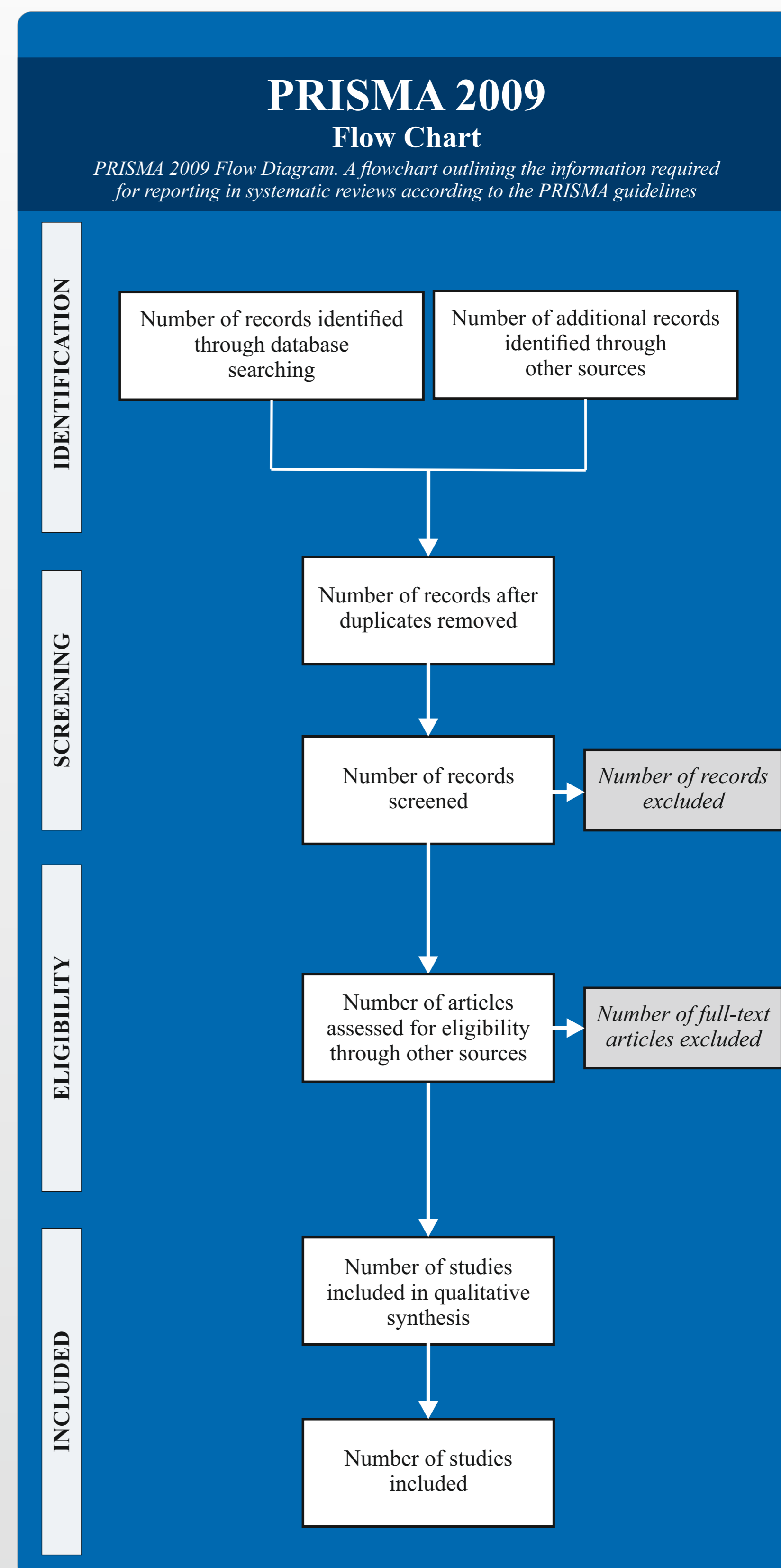
V. Eligibility/Assessment

1. Define inclusion and exclusion criteria
2. Define the strategy for the strength of evidence
3. Assess the strength of evidence of the articles
4. Assess the types of bias that may exist:
 - (1) Selection bias,
 - (2) performance bias,
 - (3) Measurement bias,
 - (4) Exclusion bias
5. Check and read in depth the selected full-text articles

VI. Presentation/Interpretation

1. Synopsis of the systematic review findings
2. Study of the heterogeneity of the included articles
3. Presentation of the results
4. Interpretation of the findings
5. Discussion on the generalizability of conclusions
6. Limitations of the systematic review
7. Recommendations for further research

Systematic Review FlowChart^[3]



Points of attention

- A systematic review should be carried out in groups involving at least 2-3 researchers.
- Experts should always be consulted on individual scientific issues.
- The development of the Research Question requires special attention.
- Keeping full record during each phase of the systematic review takes time, but it is absolutely necessary.
- There should be given the necessary attention on the quality of the systematic review that is being carried out.
- The summary of the results of the individual studies should be done with caution.

REFERENCES

- [1] Koutsos, T. and Menexes, G. (2017) Methodology for conducting a Systematic Review, Research Technical Report, Faculty of Agriculture, Natural Forestry and Environment, School of Agriculture, A.U.Th., Thessaloniki, Hellas.
- [2] Modified diagram from Centre for Health Communication and Participation: http://navigatingeffectivetreatments.org.au/exploring_systematic_reviews.html
- [3] PRISMA 2009 Flow Diagram, available from: <http://prisma-statement.org/documents/PRISMA%202009%20flow%20diagram.pdf>

