

CRITICAL APPRAISAL FOR SYSTEMATIC REVIEW

Mr. Suresh V.¹, Dr. J. D. Lakhani²

¹. *Associate Professor, Department of Mental Health Nursing,
Sumandeep Nursing College, Sumandeep Vidyapeeth deemed to be University, Piparia,
Waghodia, Vadodara, Gujarat.*

². *Professor, Dept. of General Medicine, SBKSMI & RC
Sumandeep Vidyapeeth deemed to be University, Piparia,
Waghodia, Vadodara, Gujarat.*

Corresponding Author:

*Mr. Suresh V.
Associate Professor, Department of Mental Health Nursing,
Sumandeep Nursing College, Sumandeep Vidyapeeth deemed to be University, Piparia,
Waghodia, Vadodara, Gujarat.
Email: yss_ssh@yahoo.co.in
Contact No.: +919558992443*

INTRODUCTION

Critical appraisal is the process of carefully and systematically assessing the outcome of scientific research (evidence) to judge its trustworthiness, value and relevance in a particular context.

Critical appraisal helps to reduce the burden and allow you to focus on articles that are relevant to the research question, and that can reliably support or refute its claims with high-quality evidence, or identify high-level research relevant to your practice.¹

Systematic reviews and meta-analyses have become increasingly important in healthcare settings. Clinicians read them to keep up-to-date with their field and they are often used as a starting point for developing clinical practice guidelines. Granting agencies may require a systematic review to ensure there is justification for further research and some healthcare journals are moving in this direction.²

HOW TO CRITICALLY APPRAISE FOR SYSTEMIC REVIEW

Researchers, administrators, educators and clinicians frequently use standard critical appraisal tools to evaluate the quality of published research reports.

Critical appraisal tools provide analytical evaluations of the quality of the study, in particular the methods applied to minimise biases in a research project.

A Systemic review need development of the search strategy for search evidence. An questions are formulating its PICO (Population or Problem, Intervention, Comparison, Outcome) formate.³

Reduce information overload by eliminating irrelevant or weak studies. Identify the most relevant papers. Distinguish evidence from opinion, assumptions, misreporting, and belief. Assess the validity of the study. Assess the usefulness and clinical applicability of the study. Recognise any potential for bias.⁴

CRITICAL APPRAISAL CHECKLIST FOR SYSTEMATIC REVIEWS

Sr.No.		Yes	No	Unclear	Not applicable
1.	Is the review question clearly and explicitly stated?				
2.	Were the inclusion criteria appropriate for the review question?				
3.	Was the search strategy appropriate?				
4.	Were the sources and resources used to search for studies adequate?				
5.	Were the criteria for appraising studies appropriate?				
6.	Was critical appraisal conducted by two or more reviewers independently?				
7.	Were there methods to minimize errors in data extraction?				
8.	Were the methods used to combine studies appropriate?				
9.	Was the likelihood of publication bias assessed?				
10.	Were recommendations for policy and/or practice supported by the reported data?				
11.	Were the specific directives for new research appropriate?				

Overall appraisal: Include Exclude Seek further info

1. Is the review question clearly and explicitly stated?

The review question is an essential step in the systematic review process. An explicitly stated question, formulated around its PICO (Population, Intervention, Comparator, Outcome)

2. Were the inclusion criteria appropriate for the review question?

The inclusion criteria should be identifiable from, and match the review question. The necessary elements of the PICO should be explicit and clearly defined. The types of included studies should be relevant to the review question. Qualitative or economic reviews would not be included.

3. Was the search strategy appropriate?

A systematic review should provide evidence of the search strategy that has been used to locate the evidence. The search strategy found in methodology and some information also including in appendix.

4. Were the sources and resources used to search for studies adequate?

Multiple electronic databases should be searched including major bibliographic citation databases such as MEDLINE and CINAHL. A comprehensive search is the ideal way to minimize publication bias, as a result, a well conducted systematic review should also attempt to search for grey literature, or “unpublished” studies; this may involve searching websites relevant to the review question, or thesis repositories.

5. Were the criteria for appraising studies appropriate?

The systematic review should present a clear statement that critical appraisal was conducted and provide the details of the items that were used to assess the included studies. The tools or instruments used should be appropriate for the review question asked and the type of research conducted.

6. Was critical appraisal conducted by two or more reviewers independently?

Critical appraisal of the quality of the literature included in a systematic review is essential. A key characteristic to systematic error or minimize bias in the conduct of a systematic review is to have the critical appraisal of the included studies completed independently and in duplicate by members of the review team.

7. Were there methods to minimize errors in data extraction?

Efforts made by review authors during data extraction can also minimize bias or systematic errors in the conduct of a systematic review. Strategies to minimize bias may include conducting all data extraction in duplicate and independently, using specific tools or instruments to guide data extraction and some evidence of piloting or training around their use.

8. Were the methods used to combine studies appropriate?

A synthesis of the evidence is a key feature of a systematic review. The synthesis that is presented should be appropriate for the review question and the stated type of systematic review and evidence it refers to.

9. Was the likelihood of publication bias assessed?

As mentioned, a comprehensive search strategy is the best means by which a review author may alleviate the impact of publication bias on the results of the review. This question will not be applicable to systematic reviews of qualitative evidence.

10. Were recommendations for policy and/or practice supported by the reported data?

Whilst the first nine (9) questions specifically look to identify potential bias in the conduct of a systematic review, the final questions are more indicators of review quality rather than validity. Ideally a review should present recommendations for policy and practice.

11. Were the specific directives for new research appropriate?

The systematic review process is recognized for its ability to identify where gaps in the research, or knowledge base, around a particular topic exist. Most systematic review authors will provide some indication, often in the discussion section of the report, of where future research direction should lie.

REFERENCES

1. Library guides: Systematic reviews: Systematic reviews [Internet]. Libguides.library.qut.edu.au. 2020 [cited 7 July 2020].
2. Katak, P., Bialocerkowski, A.E., Massy-Westropp, N. *et al.* A systematic review of the content of critical appraisal tools. *BMC Med Res Methodol* 4, 22 (2004).
3. Gopalakrishnan, S, and P Ganeshkumar. "Systematic Reviews and Meta-analysis: Understanding the Best Evidence in Primary Healthcare." *Journal of family medicine and primary care* vol. 2,1 (2013): 9-14.
4. Library guides: Systematic reviews: Systematic reviews [Internet]. Libguides.library.qut.edu.au. 2020 [cited 7 July 2020]. Available from: <https://libguides.library.qut.edu.au/systematicreviews>