

How to Critique a Research Article

A critique is a systematic way of objectively reviewing published research to highlight both its strengths and limitations, and its applicability to practice. Healthcare professionals often need to be able to identify best current practices, and the ability to evaluate and use published research is critical in achieving this goal. As such, it is a skill required by clinicians to be able to offer their patients the most appropriate treatment option for their condition.

CHOOSING AN ARTICLE TO REVIEW

Consider the following:

- Who is the target audience of the journal (some journals target practitioners, others target academics, for example, in dentistry, *The International Journal of Prosthodontics* and *Journal of Clinical Periodontology* are two journals likely to target clinicians. While *Journal of Dental Research* and *Community Dentistry and Oral Epidemiology Journal* are likely to target research scientists and university professors.
- Is the peer-review process of the journal clearly explained? (It is important to know that at least two reviewers approved the publication of the article)
- When was the article published?
- Was the paper cited by others (the more citations the more important the article is (usually)).

NOTE: Rigorous procedures of manuscripts review before publication is not always followed, and not all work that is published is accurate or trustworthy. This why journals have a very clear and detailed guidelines for publications and almost all journal ask that authors to write a statement about receiving ethical approval from an appropriate committee when applicable.

CRITIQUE CRITERIA

1. THE TITLE

Does the title clearly indicate what the research is about (it should not be too long, but still should be informative)

THE AUTHOR(S)

- Who are the authors?
- What are their affiliations (universities, research institute, hospitals etc...)

THE ABSTRACT

The purpose of an abstract is to provide a summary of the content of the article and usually cannot exceed 250-300 words in length. It should contain enough information to enable a reader to decide whether the article is of interest to them or not, so must be informative.

Questions to ask:

- *What is the purpose of the study?*
- *What are the main findings?*
- *What are the conclusions based on the findings?*

THE INTRODUCTION

The introduction should orientate the reader to the study, by giving a thorough and concise background of previously published research about the topic. The authors should also introduce the question /problem and finally state the objective of the study.

Questions to ask:

- *Is the background of the research relevant to the research question?*
- *Did the authors provide a good argument to justify the conduct of their study?*

THE LITERATURE REVIEW

The literature review should give an overview of the available literature which frames or surrounds the problem being researched. It should be based on scientific evidence and not opinions. Should look at the similarities and differences between the literature, as well as, the strengths and limitations. It should illustrate how the current study fits into the existing framework of research or how it fills a gap in the literature (answer questions that still not answered about the topic)

Questions to ask:

- *Is the literature review broad, yet focused on the issue?*
- *Is there convincing evidence to support claims?*
- *Did the authors present opposing views or did they only select studies only in one direction.*
- *Does it reveal gaps in the knowledge which this research will fill?*
- *Does it convince the reader that the topic is interesting, original and important?*

AIM OF THE STUDY

The aim of the study should be clear and focused.

Questions to ask:

- *Does the aim clearly describe what the authors would like to achieve?*

THE RESEARCH DESIGN

This section should clearly state what the researcher did and how it was done, allowing the reader to evaluate the methods used, the consistency, the reliability of the study, its validity and whether it could be replicated (remember that if the authors do not provide sufficient information to be able to replicate the study, then it is weak and give room for doubt about the study findings).

The method section of the research design usually has subsections which describe the participants, the sample size justification, inclusion and exclusion criteria (if applicable), where did the subjects of the study come and ethics approval.

Questions to ask:

- *Is there a clear rationale for the chosen research approach (study design), methods and/ or instruments used?*
- *Is the research method appropriate for the research question?*
- *Was the collection of data appropriate for the research question?*
- *Is there enough information concerning the participants?*

- *What were the ethical considerations for the research and the participants?*
- *Were the methods and/or instruments described in enough detail?*
- *Is the method used reliable and valid (the authors should provide such assurance)?*

DATA ANALYSIS AND RESULTS SECTIONS:

This section should contain a summary of how the data were analysed and the results obtained. This section should highlight the important findings.

Questions to ask:

- *Do the tables and graphs/ figures presented (if any) make the data analysis clear.*
- *Was the chosen data analysis method appropriate?*
- *Where all the data taken into account (for example are all data shown in the tables or are there some numbers missing, but the authors do not provide an explanation)?*
- *Are the results shown related to the main purpose of the study?*

THE DISCUSSION

In this section, the implications of the research results are evaluated and interpreted in relation to the research question. The authors compare their findings to other previously published studies. The discussion should contain a clear statement of support or otherwise of the original hypothesis or research question. The results of this study and those of other studies should be discussed, and any suggestions for improvements or further research are made here. The authors should not repeat what they already mentioned in the literature review or results sections.

Questions to ask:

- *Have the results been interpreted in relation to the stated research question and aims?*
- *Did the researcher highlight the most important results?*
- *Have the results been used to support or refute the results of other studies?*
- *Did the authors discuss how their findings add to current knowledge in the research area?*

CONCLUSION

This section should summarize the main points, and indicate the usefulness of the research. It should not include any new information. Areas for future research may be suggested.

Questions to ask:

- *Were the main points highlighted?*
- *Have any recommendations been made based on the research?*
- *Were there any suggestions for future research?*

REFERENCE LIST

Questions to ask:

- *Are all sources cited clearly and with full bibliographic details provided?*
- *Has a wide range of works in the field been referred to (the authors did not focus on few journals or authors)?*
- *Does the list contain classic references as well as recent publications.*

References:

1. Ryan, F, Coughlan, M & Cronin, P 2007, 'Step-by-step guide to critiquing research. Part 2: qualitative research', British Journal of Nursing,, vol 16, no. 12, pp. 738-743.
2. Greenhalgh T. How to read a paper: getting your bearings (deciding what the paper is about). *BMJ* 1997; 315(7102):243-6
3. Sutherland S. Evidence-based Dentistry: Part V. Critical Appraisal of the Dental Literature: Papers About Therapy. *J Can Dent Assoc* 2001; 67(8):442-5
4. <http://www.flinders.edu.au/SLC>