

Critical Analysis of Research Reports and Articles

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Introduction

Meaning:

The term derives from a greek term “Kritik” meaning “discerning judgement”, usually the value of something.

Caution

- All published studies are not sound
- All information on net are not reliable

Purpose

- Student do critique to demonstrate their methodological skill.
- To accept the study for publication in journal
- To assemble evidence for practice

What is critique?

- It is a thoughtful critical appraisal of strength and limitations of the study
- It critically identifies adequacies and inadequacies, virtues as well as faults
- Identifies both merits and limitations
- Provides guidance about alternative research strategies
- Offers guidance about ways in which study results may have been compromised

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- Research critique is a mechanism to provide feedback for improvement

What critique is not?

- Not just reviews or summary of a study
- Not to hunt for or expose mistakes

Types of Research Critiques conducted in Nursing

- Student critiques
- Critiques by practice nurse
- Critiques by Nursing Educators
- Critiques by Nurse Researchers
- Critiques after verbal presentation of studies
- Critiques after published research reports
- Critiques for abstract selection
- Critiques of an article for publication
- Critique of research proposals

Elements of Critique

- Substantive and theoretical dimension
- Methodologic dimension
- Ethical Dimension
- Interpretative dimension
- Presentation and stylistic dimension

Substantive and theoretical dimension

- Problem statement, hypothesis and research questions, literature review and conceptual framework

Methodologic dimension

- Research designs, data collection procedures, data quality, data analysis

Ethical Dimension

- Ethical principles followed, measures taken to protect rights of participants.

Interpretative dimension

- Interpretations arrived correctly, recommendations made

Presentation and stylistic dimension

- Presentation of chapters, diagram, tables, figures, Style of referencing etc

Substantive and theoretical dimension

A. Evaluate the need for conducting study

1. Avoid myopic view of study's importance and relevance
2. Avoid unnecessary replication
3. Replication can be done with specific purpose for generalization of earlier findings

B. Good fit between research problem and overall study design.

Guidelines for critiquing problem statement

- Is the problem statement clear?(Purpose)
- Is problem statement in single declarative or interrogatory sentence?
- Are the study variables and population stated?
- Does the problem statement indicate that empirical data could be gathered on the topic of interest?

Critiquing Hypothesis and Research Questions

- Does the study contain a hypothesis?
- Is each hypothesis clearly worded and concise
- Is hypothesis written in declarative statement?
- Is each hypothesis directly tied to study problem?
- Is there a clearly identified study framework, is hypothesis derived from this framework

Critiquing Hypothesis and Research Questions

- Does each hypothesis contain population and at least two variables?
- Is it apparent that each hypothesis is empirically tested?
- Does each hypothesis contain only one prediction
- Is the study contains research questions, are questions precise and specific?

Critiquing Literature review

- Does it include all major studies conducted on the topic?
- Recent Studies?
- Is the review mere summary or critically appraise and compare key studies
- Does it identify gaps in literature
- Does review use appropriate language, is it objective
- Well organized?, Development of ideas clear?
- Does it lay strong foundation for the new study?

Critiquing Theoretical and conceptual Framework

- Does it describes a theoretical and conceptual framework of the study?
- Does it describe major features of theory?
- Is theory appropriate to research problem
- Whether based on conceptual model,or borrowed from other discipline,concepts adequately defined, does researcher tie the findings of study back to framework at end of report

Critiquing Theoretical and conceptual Framework

- Are all the concepts adequately defined in a way that is consistent with theory
- Does the researcher tie the findings back to the framework at the end of the report?

METHODOLOGIC DIMENSIONS

In Quantitative study

Design-What?

Sample-Who?, Size?

Data Collection Method-What?

Data Analysis- Statistics used?

METHODOLOGIC DIMENSIONS

In Qualitative study

Design-What?

Setting-Where

Sample-Who?, Size?

Data Source/ Collection Method-What?

Data Analysis- Statistics used?

Quality enhancement- look for evidences that the researcher has undertaken to enhance credibility and dependability of data

Guideline for critiquing research design in Quantitative studies

- What could the best research design for the study?
- Is there an intervention?
- Was the intervention described with sufficient details?
- Longitudinal Or Cross sectional design? Was it appropriate?
- What procedures were used to control external factors?

Guideline for critiquing research design in Quantitative studies

- To what extent study is internally/Externally valid?
- Major Limitations?
- Could the design have been strengthened by inclusion of qualitative component?

Guidelines for critiquing Qualitative and Mixed method designs

- Is the research question congruent with research tradition?
- How well design described?

Guidelines for critiquing Qualitative sampling designs

- Is the accessible population identified and described?
- What type of sampling plans used?
- Probability or Non probability sampling used?
- Does the method suggest potential bias?
- Are the size and key characteristics of sample described

Guidelines for critiquing Qualitative sampling designs

- Is the sample sufficiently large?
- Is the setting and study group adequately described?
- Sample selection procedures adequately described?

Guidelines for critiquing Data Collection Procedures

- How the data was collected?
- Who collected the data?
- Was the training of data collectors adequate?
- Where and under what circumstances data collected?
- Were other people present during data collection?
- Did the data collection place any burdens-Time, stress.privacy issues. How this might have affected data quality?

Guidelines for critiquing Self reports

- Does the research question and self report match?
- How structured was the approach
- Did the researcher use the best possible mode for collecting self report(personal interviews,telephone interviews,seld administered questionnaires)
- Was the instrument too long Or too Brief?
- Tools adequately pretested?

Guidelines for critiquing Self reports

- If a scale is used, is it justified?
- If a new scale developed for the study, was it adequately tested and refined?

Guidelines for critiquing observational methods

- Does the research question lead itself to an observational method?
- Is the degree of structure of observational method consistent with research questions?
- What was the unit of analysis of observations?
- Where did observation take place?
- How were data recorded?
- What steps taken to minimize observer bias?

Guidelines for critiquing Biophysiologic Measures

- Does the research question appropriate for collection of biophysiologic data?
- Was the proper instrumentation used?
- What care was taken to obtain accurate data?
- Does the researcher have skills for proper use and interpretation of data?

Guidelines for critiquing Data Quality

- Is operational definition(Scoring procedures) specified?
- Do they clearly indicate rules of measurement?
- Does the report offer evidence of the reliability of measures?
- Validity?
- Were the research hypotheses supported?

Guidelines for critiquing Data Quality

- Does there appear to be strong relationship between variables as conceptualized

Guidelines for critiquing Quantitative Analysis

- Does the report include any descriptive statistics?
- Was the correct statistics used
- Any inferential statistics used?
- Was the selected statistical test appropriate, given the level of measurement of variables?
- Were tables and figures were judiciously used to summarize large masses of statistical information?

Guidelines for critiquing Qualitative Analysis

- Given the nature of data, were they best analyzed qualitatively?
- Is the initial categorization scheme described?
- What evidence does the report provide that the researcher analysis is accurate and replicable?
- Was the context of phenomenon adequately described?

Ethical Dimension

- Look for any violation of human rights
- Weigh between ethical violation with specific merits of study?
- Were the subjects exposed to any physical harm?
- Did the benefits outweigh the risks?
- Were vulnerable subjects used?
- Did participants had an opporunity to decline participation
- Whether participants told about potential risk?

Ethical Dimension

- Steps taken to safeguard privacy?
- Whether study approved by institutional review board

Interpretative Dimensions

- Identify study limitation
- Whether interpretations based on objective data?
- Study implications directly emerged from study findings.
- Whether all major findings discussed?
- Are interpretations consistent with results?
- Implications
- Does the researcher offer implication of finding in nursing?
- Is the implications appropriate?

Interpretative Dimensions

- Recommendations
- Are specific recommendations made- methodological changes suggested, any future investigations needed?
- Recommendations for specific nursing actions
- Recommendations consistent with findings and existing body of knowledge?

Presentation and Stylistic Dimension

- Report should be:
- Well organized
- Have sufficient information
- Be clear
- Have no grammar mistakes
- Be concise
- Avoid jargon

Guidelines for critiquing presentation of research report

- Does the report give sufficient amount of information to permit a thorough critique of the study?
- Well written and edited
- Report well organized or confusing?
- Report sufficiently concise or lot of details included
- Does the title of report adequately capture the key concepts and the population under investigation
- Does the problem statement indicate that study would be ethical?
- Is feasibility apparent while reading the study?
- Is the significance of study apparent in problem statement?



THANK YOU