Worksheet for Critical Appraisal of a Quantitative Research Article
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Problem and Purpose
1. What is the problem of the research study?
2. What is the purpose of the research study?
3. Does the purpose statement contain the population and variables studied? Identify each.

Review of Literature
1. Are gaps or conflicts in knowledge of the problem identified?
2. Are the references cited by the author current?

Framework
1. Is a framework explicitly identified?
2. What concepts are identified?
3. Are relationships among concepts identified?
4. Are variables placed in a framework?
5. What are the conceptual definitions of the variables?
6. What are the operational definitions of the variables?

Research Question(s), Objective(s) or Hypothesis(es)
1. Are research questions, objectives, or hypotheses used to direct the study? Identify.
2. What type of variable is being studied? (research or independent/dependent)
3. Are the questions, objectives, or hypotheses logically linked to the framework, purpose statement, and problem?

Research Design
1. What type of design is used in the study?
2. What is the rationale for the design classification?
3. Does the design seem to flow from the proposed problem, framework, literature review, and questions, objectives, or hypotheses?

Internal validity
1. What is controlled in the study?
2. What are the limitations of the study?

External validity
1. What are the limits to generalizability of the findings beyond this sample to the population?
Sample

1. How was the sample selected?
2. What type of sampling method is used in the study? Is it appropriate to the design?
3. Does the sample reflect the population as identified in the problem or purpose statement?
4. Is the sample size appropriate? How is it substantiated?

Instruments

1. Physiological measurement
   a. Is a rationale given for why a particular instrument or method was selected? If so, what is it?
2. Observational methods
   a. How were the observers trained to minimize bias?
   b. Is there any reason to believe that the presence of the observers affected the behavior of the subjects?
3. Interviews
   a. How were the interviewers trained to minimize bias?
   b. Is there evidence of any interview bias? If so, what is it?
4. Questionnaires
   a. What is the type and/or format of the questionnaires(s) (e.g., Likert, open-ended)?
5. Available data and records
   a. Are the records that were used appropriate to the problem being studied?

Validity and Reliability

1. What type of validity is reported for each instrument?
2. Does the validity of each instrument seem adequate? Why?
3. What type of reliability is reported for each instrument?
4. What level of reliability in this sample is reported? Is it acceptable?

Data Collection

1. What type(s) of data collection methods(s) is/are used in the study?
2. Are the data collection procedures similar for all subjects?

Legal-ethical Issues

1. How have the rights of subjects been protected?
2. What indications are given that informed consent of the subjects has been ensured?

Analysis of Data and Results

1. What are the characteristics of the sample?
2. Does the author report the level of significance set for the study? If so, what is it?
3. What statistical analysis techniques (e.g., mean, t-test, ANOVA, correlation, etc.) were performed?
4. If tables or figures are used, do they meet the following standards?
   a. They supplement and economize the text.
   b. They have precise titles and headings.
c. They do not repeat the text.

Discussion, Conclusions, Implications, and Recommendations

1. If hypothesis(es) testing was done, was/were the hypothesis(es) supported or not supported?
2. Are the results interpreted in the context of the problem/purpose, questions/objectives/hypothesis, and framework/literature reviewed?
3. What relevance for nurses does the investigator identify, if any?
4. What recommendations for future research are stated or implied?

Application and Utilization for Nurses

1. What risks/benefits are involved for patients if the research findings would be used in practice?
2. Is direct application of the research findings feasible in terms of time, effort, money, and legal/ethical risks?
3. How and under what circumstances are the findings applicable to nursing practice?
4. Would it be possible to replicate this study?

Presentation

1. Is the article easy to understand?
2. Is the writing of the article clear, grammatically correct, concise, and well organized?

Overall

1. What is the “take home message” from the article?
2. Does the information/research advance the science?

Adapted from:

