

THE NEWCASTLE CRITICAL APPRAISAL WORKSHEET

A format for examining journal articles*

*(Based on Medical Journal of Australia 1992;157:389-94)

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11 items, each with 3 sections

- Can you find this information in the paper?
- Is the way this was done a problem?
- Does this problem threaten the validity of the study?

11 items

- 1. What is the research question?
- 2. What is the study type?
- 3. What are the outcome factors and how are they measured?
- 4. What are the study factors (exposure or intervention) and how are they measured?
- 5. What important confounders are considered?
- 6. What are the sampling frame and sampling method?
- 7. In an experimental study, how were the subjects assigned to groups? In a longitudinal study, how many reached final follow-up? In a case control study, are the controls appropriate? (Etc)
- 8. Are statistical tests considered?
- 9. Are the results clinically/socially significant?
- 10. Is the study ethical?
- 11. What conclusions did the authors reach about the study question?

1. What is the research question?

- *(Is the way this was done a problem?)*
 - Is it concerned with the impact of an intervention, causality or determining the magnitude of a health problem?
- *(Does this problem threaten the validity of the study?)*
 - Is it a well stated research question/hypothesis?

2. What is the study type?

- *(Is the way this was done a problem?)*
 - Is the study type appropriate to the research question?
- *(Does this problem threaten the validity of the study?)*
 - If not, how useful are the results produced by this type of study?

3. What are the outcome factors and how are they measured?

- *(Is the way this was done a problem?)*
 - a) are all relevant outcomes assessed
 - b) is there measurement error?

- *(Does this problem threaten the validity of the study?)*
 - a) how important are omitted outcomes
 - b) is measurement error an important source of bias?

4. What are the study factors (exposure or intervention) and how are the measured?

- *(Is the way this was done a problem?)*
 - Is there measurement error?
- *(Does this problem threaten the validity of the study?)*
 - Is measurement error an important source of bias?

5. What important potential confounders are considered?

- *(Is the way this was done a problem?)*
 - Are potential confounders examined and controlled for?
- *(Does this problem threaten the validity of the study?)*
 - Is confounding an important source of bias?

6. What are the sampling frame and sampling method?

- *(Is the way this was done a problem?)*
 - Is there selection bias?
- *(Does this problem threaten the validity of the study?)*
 - Does this threaten the **external validity** of the study?

7. Questions of internal validity

- *(Is the way this was done a problem?)*
 - In an experimental study, how were the subjects assigned to groups?
 - In a longitudinal study, how many reached follow-up?
 - In a case control study, are the controls appropriate?
 - Note: other issues of relevance to internal validity are considered under the other headings in this critical appraisal system. You can add your own questions, and also design your own questions for other study types such as cross sectional studies and systematic reviews
- *(Does this problem threaten the validity of the study?)*
 - Does this threaten the **internal validity** of the study?

8. Are statistical tests considered?

- *(Is the way this was done a problem?)*
 - Were the tests appropriate for the data?
 - Are confidence intervals given?
 - Is the power given if a null result?
 - In a trial, are results presented as absolute risk reduction as well as relative risk reduction?
- *(Does this problem threaten the validity of the study?)*
 - If not, how useful are the results?

9. Are the results clinically/socially significant?

- *(Is the way this was done a problem?)*
 - Was the sample size adequate to detect a clinically/socially significant result?
 - Are the results presented in a way to help in health policy decisions?
- *(Does this problem threaten the validity of the study?)*
 - Is the study useful?

10. Are ethical issues considered?

- *(Is the way this was done a problem?)*
 - Does the paper indicate ethics approval?
 - Can you identify potential ethical issues?
- *(Does this problem threaten the validity of the study?)*
 - Are the results or their application compromised?

11. What conclusions did the authors reach about the study question?

- *(Is the way this was done a problem?)*
 - Do the results apply to the population in which you are interested?
- *(Does this problem threaten the validity of the study?)*
 - Will you use the results of the study?