Critical appraisal may be defined as: “The assessment of evidence by systematically reviewing its relevance, validity and applicability to specific situations.”

(While some points may apply to appraising all studies, particular aspects to consider will vary depending on the type of research study. Various detailed checklists, glossaries and guides are available.

Title: Focus Does it clearly indicate what it is about?

Authors: Credibility What are their qualifications, experience, affiliations?

Abstract: Summary Does it give a clear overview? Does it look relevant to your practice? Is it worth reading? If not stop.

Introduction: Relevance Is the research question/problem clearly stated? Why is the research being done? Is it original? Is the clinical relevance clear? Are the objectives and hypothesis appropriate to the question? Will it add to what is already known?

Other considerations: Could there be a conflict of interest? (e.g. Funding from an organisation with a vested interest) Was ethical approval obtained, and were issues of consent, confidentiality, or anonymity addressed?

Methodology: Validity, Reliability, Accuracy

Use of references: Was a comprehensive literature search done for previous research indicating databases, registers, hand search, contacts used? Are the references up to date and correctly cited? Is the relevance effectively discussed?

Type of study design: Is it clearly identified? Is it quantitative or qualitative or mixed? Is it appropriate for the research question? What research tools were used: RCT, Cohort study, Survey, Focus Interview?

Sampling & Statistics: Were the participants sampled appropriately? Are the techniques explained? How were they selected and allocated? Is the sample representative and large enough? How was bias avoided or minimised? Are statistical methods used, such as randomisation, blinding appropriate? Was any confounding identified? Did untoward events occur?

Results: Validity, Reliability, Accuracy

How are these presented? Is data described clearly? Are tables, figures, charts clear, appropriate and easy to interpret? Are all the studies listed? Does it measure what it is supposed to? Do numbers add up? Are discrepancies explained? (e.g. Size of sample, follow up, drop outs. Are reasons given?)

Discussion/ Interpretation/ Data Analysis

Have the objectives been fulfilled? Does it answer the question or address the original hypotheses? Are limitations/weaknesses identified? Were all clinically important outcomes considered? Has the significance of the findings been properly assessed? Do the inferences/conclusions make sense? Are they justified?

This guide provides points obtained from readings and linked resources listed below. Considering them will help in working through the process of appraising research studies.
Reliability/ Applicability/ Transferability/ Generalisability
Would you be able to replicate the study (reliability), use it in your practice (applicability) or with other groups (generalisability)

Conclusion / Recommendations
Are the key findings stated?
Are the implications and recommendations for clinical practice given?
Have areas for possible future research been identified?

Do you agree? Can you use it?

RESOURCES AND CHECKLISTS

Centre for Evidence Based Medicine  http://www.cebm.net  > EBM Tools
Checklists, Explanations, Examples, Calculators, Study design

Critical Appraisal Skills Programme (CASP) (UK)  http://www.casp-uk.net  > Checklists

Health Knowledge Course: Finding & Appraising Evidence
(Sponsored by the Department of health and the Public health Action Support Team)
An interactive online course of several modules with short explanations of key concepts and exercises to test understanding based on CASP.

Canadian Centre for Health Evidence  http://www.cche.net  US JAMA Guides & calculators

The Cochrane Collaboration EBHC Webliography
http://www.cochrane.org/about-us/evidence-based-health-care/webliography

Glasgow checklists (General practice and Primary Care)
http://www.gla.ac.uk/researchinstitutes/healthwellbeing/research/generalpractice/ebp/checklists/
#d.en.19536

Table of all checklists and tools for all types of studies produced by University of South Australia (very detailed with links to relevant websites)

BMJ PICO  http://www.bmj.com/content/337/bmj.a2946.full  includes examples for research studies

Evidence based nursing  http://ebn.bmj.com/

Bandolier Learning Zone  http://www.medicine.ox.ac.uk/bandolier/learnzone.html  includes detailed articles on statistical concepts.

Quality MK  http://www.qualitymk.nhs.uk/  Subject Guide (7 pages includes more resources)


Medical statistics from scratch: an introduction for health professionals / Bowers, David. 2nd ed (2008) ebook available via NHS Evidence with an Athens ID.

For training & assistance with Critical Appraisal please contact the Clinical Outreach Librarians
Email: Darrel Mason or Fran Lamusse or Tel: 023 9228 6042

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