

Critical appraisal: Lens of lucidity or unwelcome companion

Martin Keane, Researcher
Health Research Board
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- * **What is critical appraisal**

- * *'Critical appraisal has been described as 'the process of systematically examining research evidence to assess its validity, results and relevance before using it to inform a decision' (Gough et al. 156; 2012) (Consensual definition)*

- * **Some key areas touched on in this presentation**

- * (Some) of the key components of critical appraisal

- * How and why instruments of appraisal differ

- * How the systematic use of critical appraisal is essential to enhanced learning and professional practice

* **(Some) of the key components of critical appraisal**

* *“The skill in critical appraisal lies not in identifying problems, but in identifying errors that are **large enough** to affect how the result of the study should be interpreted” (Petticrew and Roberts; 2006)*

* The relevance of the research question (See Orford; 2007)

* The internal validity of the study; the degree to which **bias** has been minimised or avoided; e.g. selection bias, response bias, attrition bias and observer bias

* The external validity of the study; the precision and extent of generalising to other populations and/or settings

* The appropriateness of data analysis

* Distinguish between quality of reporting and quality of research

* **How and why instruments of appraisal differ**

* *Appraising reports of **RCTS** (experiments) using the Jadad Scale; some key questions*

* Was the study described as randomised?

* Was the study described as double-blind?

* Was there a description of withdrawals and drop-outs?

* *Appraising reports of **observational studies** (non-randomised); some key questions*

* Are comparison or control groups similar to intervention group on variables that will affect the outcome?

* Are the measures used the most relevant ones to answer the research question? i.e. in-direct or direct measures?

* Is the sample large enough to produce significant results? Is the effect size clinically or operationally relevant?

* Appraising reports with **qualitative designs** and information (Some key questions)

- Are the objectives of the study included? What are they? Have they been achieved? i.e. descriptive, exploratory, explanatory
- Is the data collection methods appropriate for answering the research questions? i.e. focus groups, interviews, ethnographic methods
- Are they sampling methods appropriate? i.e. convenience, purposive
- Is the analysis of the data described (transparency) and is it 'fit for purpose'? i.e. grounded theory, phenomenology
- Are the findings of the study reported clearly? What are the key findings?
- Are they conclusions drawn from the study credible?

- * Appraising reports with **qualitative** designs and information
- * Is the tail wagging the dog? Barbour warning of over-reliance on using checklists when appraising qualitative work
- * Plethora of appraisal instruments in the literature; no GOLD STANDARD study design but some **SIGNALS** can cancel out the **NOISE**
- * (i) retain the capacity to evaluate what you read (use some checklist)
- * (ii) develop the capacity to relate what you read to other information (consider meaning and context)

- * **How the systematic use of critical appraisal is essential to enhanced learning and professional practice.**
- * McKeganey *et al.* (2004) what are drug users looking for when the contact services? Abstinence or harm reduction?
- * Cohort of 1007 entering treatment (DORIS)
- * 'What changes in your drug use do you hope to achieve by coming to this agency?'
- * 56.6% identified 'abstinence only'

- * **How the systematic use of critical appraisal is essential to enhanced learning and professional practice.**
- * Post the McKeganey et al paper, 'much of the detail of the findings lost in subsequent reporting [and citation]' (Neale *et al*; 2011)
- * Specifically McKeganey' s warning that 'abstinence may not be a realistic goal for many, even through they aspire to it'
- * Also as Neale and colleagues (2011) point out 'a different methodological approach may have better enable us to understand what drug users really want from drug treatment'
- * Complexity, detail and context not captured in DORIS study

- * **Some examples of the value of critical appraisal from a recent review on banning smoking in cars carrying children**
- * second-hand smoke was **23 times** more toxic in a vehicle than in a home (much cited stat in the literature)
- * *'failed to locate any scientific source for this comparison' [consequently] researchers and organisations stop using the statistic because there is no evidence for it in the scientific literature'. (Mackenzie and Freeman:796; 2010)*
- * SHS in cars being **7 times** higher than in a smoky bar (Sendzik *et al.* 2009)
- * However, the reporting in both studies reveals a number of inconsistencies in respect of the conditions being compared and how the '7 time higher' statistic was generated

* 'Around Bonfire Night 2007 a rocket shook the peak of England's drug treatment structure – someone asked **how many patients ended up drug-free.** Clothless as the fabled emperor, **'3%' came the reply.** Bullish engagement and crime reduction claims were dismissed as irrelevant. Scotland had already suffered a similar attack. The New Abstenionists were on the march and the statistics seemed to be with them. But their attacks and the defences put up against them were based on questionable assumptions and misinterpreted or just plain mistaken figures. This forensic examination of the claims examines the good and not-so-good to emerge from this episode and finds some inspiration for the future'.

* **by Mike Ashton**

- * **How the systematic use of critical appraisal is essential to enhanced learning and professional practice.**
- * The New Abstenionists (Mike Ashton)
- * NTA 'crime reduction'
- * BBC getting people of drugs!
- * 2006/7 3% exited treatment drug-free 5829 patients
- * Conventional wisdom addiction is chronic relapsing condition needing long-term care (maintenance)
- * Treatment that embody certain objectives e,g residential rehab (abstinence) methadone (harm reduction)

* **Some links to critical appraisal tools and relevant texts**

* <http://www.casp-uk.net/> (checklists)

* Rychetnik *et al.* (2002) Criteria for evaluating evidence on public health interventions. *Journal of Epidemiology and Community Health*, 56: 119-127 (addresses appraisal under a number of broader categories e.g. guidelines, implementation science)

* Petticrew and Roberts (2006) *Systematic Reviews in the Social Sciences: A practical guide*. Oxford: Blackwell Publishing.

* Gough D, Oliver S and Thomas J (2012) *An introduction to systematic reviews*. London: SAGE