

Critical appraisal in systematic reviews and rapid reviews

Geoff Frampton
Southampton Health Technology Assessments Centre
(SHTAC), University of Southampton, UK

Abstract [Link to slideshow](#) [Link to webinar series](#)

Critical appraisal (also referred to as validity assessment, risk of bias assessment or quality assessment) is an important stage of a quantitative systematic review. When conducted appropriately, critical appraisal ensures that any systematic errors (i.e. bias) present in the included studies are identified and can be accounted for in the data synthesis so that they are not propagated through to bias the review's conclusions.

Despite the crucial role that critical appraisal plays, this stage of published environmental management systematic reviews is often conducted inconsistently and frequently unfit for purpose, meaning that a large proportion of the conclusions of published environmental management systematic reviews and meta-analyses may be unreliable.

The Collaboration for Environmental Evidence (CEE) provides guidelines for the critical appraisal of studies included in environmental management systematic reviews but these lack detail. A framework to improve reliability and consistency of critical appraisal is therefore being developed, based on a Plan-Conduct-Report-Apply approach and conforming to core overarching principles of critical appraisal. These core principles, termed FEAT, specify that critical appraisal should be: FOCUSED: on validity, i.e. on systematic error (not conflating validity with other "quality" constructs); EXTENSIVE: capturing all relevant sources of systematic error (i.e. all relevant domains of bias); APPLIED: to inform the data synthesis in an appropriate way; and TRANSPARENT: so the rationale for validity judgements is clear. Existing fit-for-purpose risk of bias tools such as those developed by Cochrane already comply with FEAT principles but many widely used "quality assessment" approaches do not.

In this presentation I will explain the current challenges and limitations of critical appraisal in environmental management systematic reviews and illustrate how the critical appraisal framework and FEAT principles would address these. I will also consider whether critical appraisal should be conducted in rapid reviews and whether similar challenges, limitations and solutions would apply.



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