December 2016 – SUPPORT Summary of a systematic review

What are the impacts of teaching critical appraisal skills in healthcare settings?

Critical appraisal is the process of assessing and interpreting evidence by systematically considering its validity (closeness to the truth), results and relevance to an individual's work. The goal of formal training in critical appraisal skills is to help healthcare workers in understanding results of research studies and their relevance to patient care. This review focused on training for qualified health professionals in practice, and not health professional students.

Key messages

➔ **Teaching critical appraisal skills to health professionals may improve their knowledge of how to critically appraise research papers.**

➔ **It is uncertain whether teaching critical appraisal skills to health professionals leads to actual changes in their critical appraisal skills.**

➔ **No study was found that evaluated the impact of teaching critical appraisal skills on processes of care or patient outcomes.**

➔ **None of the included studies were from low-income countries.**

Who is this summary for?

People making decisions concerning educational interventions for teaching critical appraisal skills to health professionals

! This summary includes:

- **Key findings** from research based on a systematic review
- **Considerations about the relevance of this research** for low-income countries

X Not included:

- Recommendations
- Additional evidence not included in the systematic review
- Detailed descriptions of interventions or their implementation

This summary is based on the following systematic review:

Horsley T, Hyde C, Santesso N, et al. Teaching critical appraisal skills in healthcare settings. Cochrane Database Syst Rev 2011; 9 (11): CD001270.

What is a systematic review?

A summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise the relevant research, and to collect and analyse data from the included studies

SUPPORT was an international project to support the use of policy relevant reviews and trials to inform decisions about maternal and child health in low- and middle-income countries, funded by the European Commission (FP6) and the Canadian Institutes of Health Research.

Glossary of terms used in this report: www.supportsummaries.org/glossary-of-terms

Background references on this topic: See back page

Background

When healthcare professionals face a dilemma concerning the effectiveness of an intervention for their patients, one option is to locate and appraise relevant scientific studies. Formal training in critical appraisal skills may assist healthcare workers in assessing and interpreting the validity and relevance of research evidence. Critical appraisal may also help healthcare workers deal with information overload.

How this summary was prepared

After searching widely for systematic reviews that can help inform decisions about health systems, we have selected ones that provide information that is relevant to low-income countries. The methods used to assess the reliability of the review and to make judgements about its relevance are described here: www.supportsummaries.org/how-support-summaries-are-prepared/

Knowing what's not known is important

A reliable review might not find any studies from low-income countries or might not find any well-designed studies. Although that is disappointing, it is important to know what is not known as well as what is known.

A lack of evidence does not mean a lack of effects. It means the effects are uncertain. When there is a lack of evidence, consideration should be given to monitoring and evaluating the effects of the intervention, if it is used.

About the systematic review underlying this summary

Review objective: To assess the effects of teaching critical appraisal skills to health professionals on the process of care, patient outcomes and knowledge of health professionals

Types of	What the review authors searched for	What the review authors found
Study designs & Interventions	Randomised trials, non-randomised trials, controlled before-after studies, and interrupted time series studies that examined the effectiveness of educational interventions teaching critical appraisal to health professionals	Three randomised trials of: journal club supported by a half-day workshop (1 study); critical appraisal materials (a package including papers with methodological reviews), list-serve discussions and articles (1 study); and a half-day workshop based on a Critical Appraisal Skills Programme (CASP) (1 study)
Participants	Any qualified healthcare professionals (including managers and purchasers) with direct patient care. Studies involving students were excluded	Interns (1 study) and physicians (2 studies)
Settings	Any clinical setting	USA, UK and Canada
Outcomes	Process of care, patient mortality, morbidity, quality of life and satisfaction	Knowledge (2 studies) and critical appraisal skills (3 studies)

Date of most recent search: June 2011

Limitations: This was generally a well-conducted systematic review with only minor limitations.

Horsley T, Hyde C, Santesso N, et al. Teaching critical appraisal skills in healthcare settings. Cochrane Database Syst Rev 2011; 9 (11): CD001270.

Summary of findings

The review identified three studies involving 272 participants. None of the included studies were conducted in a low-income country.

➔ **Teaching critical appraisal skills to health professionals may improve their knowledge of how to critically appraise research papers. The certainty of this evidence is low.**

➔ **It is uncertain whether teaching critical appraisal skills to health professionals leads to actual changes in their critical appraisal skills. The certainty of this evidence is very low.**

➔ **None of the included studies evaluated the effects of teaching critical appraisal skills on processes of care or patient outcomes.**

About the certainty of the evidence (GRADE) *

⊕⊕⊕⊕
High: This research provides a very good indication of the likely effect. The likelihood that the effect will be substantially different† is low.

⊕⊕⊕◯
Moderate: This research provides a good indication of the likely effect. The likelihood that the effect will be substantially different† is moderate.

⊕⊕◯◯
Low: This research provides some indication of the likely effect. However, the likelihood that it will be substantially different† is high.

⊕◯◯◯
Very low: This research does not provide a reliable indication of the likely effect. The likelihood that the effect will be substantially different† is very high.

* This is sometimes referred to as 'quality of evidence' or 'confidence in the estimate'.

† Substantially different = a large enough difference that it might affect a decision

See last page for more information.

Teaching critical appraisal for improving process of care variables, patient outcomes and health professionals' knowledge

Population Health professionals
Settings Any setting
Intervention Teaching critical appraisal
Comparison Usual care

Outcomes	Effects	No of participants (studies)	Certainty of the evidence (GRADE)
Process of care	Not reported	-	-
Patient-related outcomes	Not reported	-	-
Critical appraisal skills Heterogenous measurement scales Follow-up: 0 to 6 months	Effects on critical appraisal skills were uncertain	160 (3 studies)	⊕◯◯◯ Very low
Knowledge Follow-up: 0 to 6 months	Critical appraisal training resulted in improvements in knowledge in both studies	146 (2 studies)	⊕⊕◯◯ Low

GRADE: GRADE Working Group grades of evidence (see above and last page)

Relevance of the review for low-income countries

➔ Findings	▷ Interpretation*
APPLICABILITY	
➔ **None of the included studies were conducted in a low-income country. Interventions assessed included journal club supported by a half-day workshop, critical appraisal materials, listserve discussions and articles and a half-day Critical Appraisal Skills Programme (CASP) workshop**	▷ *It is uncertain whether some of the interventions that were evaluated would be feasible in low-income countries.* ▷ *Although impacts on knowledge might be similar, the certainty of this evidence was low, and the certainty of the evidence for other outcomes was very low.*
EQUITY	
➔ **The included studies did not report data regarding differential effects of critical appraisal educational interventions (workshops, materials and programmes) across populations with varying socioeconomic status.**	▷ *The critical appraisal interventions assessed (workshops, materials, programmes) may require resources and technical skills that are often scarce in low-income settings; this may limit their utilisation and effectiveness in those settings.*
ECONOMIC CONSIDERATIONS	
➔ **None of the included studies assessed costs associated with critical appraisal educational interventions. In one study one-off workshops was estimated to cost GBP 250 per participant.**	▷ *The potential benefits of critical appraisal educational interventions need to be weighed against the time, efforts and money associated with their implementation on a large scale (and gains from other uses of resources, such as direct investments in patient care).*
MONITORING & EVALUATION	
➔ **There was no eligible study on the effects of educational interventions teaching critical appraisal skills in healthcare settings in low-income countries.**	▷ *Randomised trials of educational interventions teaching critical appraisal to health professionals in low-income countries are needed. Outcomes assessed should include professional practice, patient outcomes and costs.*

*Judgements made by the authors of this summary, not necessarily those of the review authors, based on the findings of the review and consultation with researchers and policymakers in low-income countries. For additional details about how these judgements were made see: www.supportsummaries.org/methods

Additional information

Related literature

Young T, Rohwer A, Volmink J, Clarke M. What are the effects of teaching evidence-based health care (EBHC)? Overview of systematic reviews. PLoS One 2014; 9(1): e86706.

Akl EA, Kairouz VF, Sackett KM, et al. Educational games for health professionals. Cochrane Database Syst Rev 2013; 3: CD006411.

Coomarasamy A, Khan KS. What is the evidence that postgraduate teaching in evidence based medicine changes anything? A systematic review. BMJ 2004; 329(7473):1017.

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Conflict of interest

None declared. For details, see: www.supportsummaries.org/coi

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This summary has been peer reviewed by: Chris Hyde, Nancy Santesso and Frode Forland.

This review should be cited as

Horsley T, Hyde C, Santesso N, et al. Teaching critical appraisal skills in healthcare settings. Cochrane Database Syst Rev 2011; 9 (11): CD001270.

The summary should be cited as

Opiyo N. What are the impacts of teaching critical appraisal skills in healthcare settings? A SUPPORT Summary of a systematic review. December 2016. www.support-collaboration.org/summaries.htm

About certainty of the evidence (GRADE)

The "certainty of the evidence" is an assessment of how good an indication the research provides of the likely effect; i.e. the likelihood that the effect will be substantially different from what the research found. By "substantially different" we mean a large enough difference that it might affect a decision. These judgements are made using the GRADE system, and are provided for each outcome. The judgements are based on the study design (randomised trials versus observational studies), factors that reduce the certainty (risk of bias, inconsistency, indirectness, imprecision, and publication bias) and factors that increase the certainty (a large effect, a dose response relationship, and plausible confounding). For each outcome, the certainty of the evidence is rated as high, moderate, low or very low using the definitions on page 3.

For more information about GRADE: www.supportsummaries.org/grade

SUPPORT collaborators:

The Cochrane Effective Practice and Organisation of Care Group (EPOC) is part of the Cochrane Collaboration. The Norwegian EPOC satellite supports the production of Cochrane reviews relevant to health systems in low- and middle-income countries . www.epocoslo.cochrane.org

The Evidence-Informed Policy Network (EVIPNet) is an initiative to promote the use of health research in policymaking in low- and middle-income countries. www.evipnet.org

The Alliance for Health Policy and Systems Research (HPSR) is an international collaboration that promotes the generation and use of health policy and systems research in low- and middle-income countries. www.who.int/alliance-hpsr

Norad, the Norwegian Agency for Development Cooperation, supports the Norwegian EPOC satellite and the production of SUPPORT Summaries. www.norad.no

The Effective Health Care Research Consortium is an international partnership that prepares Cochrane reviews relevant to low-income countries. www.evidence4health.org

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