

# **SWAR 41: Evaluating the usability of unified tools for critical appraisal in rapid reviews of the effects of interventions.**

## **Objective of this SWAR**

1. To assess and compare the time taken to complete critical appraisals in rapid reviews of the effects of interventions using either a unified tool or a series of JBI study design-specific tools.
2. To evaluate the inter-observer agreement levels between two reviewers for each type of appraisal tool.
3. To assess the ease of use for each type of appraisal tool.

Study area: Critical appraisal

Sample type: Review Authors

Estimated funding level needed: Low

## **Background**

There is considerable inconsistency in assessing the methodological quality of included studies in rapid reviews, which can lead to potential biases.[1-3] Approaches to critical appraisal in rapid reviews vary widely, with some employing a single reviewer, others use a single reviewer with a verifier, while some even omit appraisal entirely.[1,2] Conversely, some rapid reviews use two or more independent reviewers to provide a more thorough assessment.[3,4] The time required for critical appraisal of each study can range from 10 to 40 minutes, influenced by factors such as the complexity of the appraisal tool, the number and experience of reviewers, and the complexity of the studies being appraised.[5-8]

By examining unified tools for critical appraisal applicable across various comparative study designs, this Study Within a Review (SWAR) [9] aims to determine if such an approach can streamline the appraisal process, enhance efficiency, and reduce the time and resources required for rapid reviews. It will evaluate whether unified tools are more time-efficient compared to design-specific tools when conducting critical appraisal in rapid reviews of the effects of interventions and identify which unified tool is most efficient for this purpose.

## **Interventions and Comparators**

Intervention 1: Critical appraisal using three different unified tools

Intervention 2: Critical appraisal using JBI study-specific tools

Index Type:

## **Method for Allocating to Intervention or Comparator:**

One reviewer (plus a second independent reviewer) will assess the entire sample of studies using each of the tools. The order that each tool is used will be randomised across the reports of the included studies for each reviewer, thereby aiming to minimise order bias.

## **Outcome Measures**

Primary: Time (in minutes) each rater spends completing each tool for each study, time taken by the second rater to review the initial appraisal, and time required to reach consensus.

Secondary: Inter-observer agreement levels between two reviewers

Ease of use

- Clarity of instructions: 1 (Very unclear) to 7 (Very clear)
- Ease of understanding criteria: 1 (Very difficult) to 7 (Very easy)
- Overall simplicity: 1 (Very complicated) to 7 (Very simple)

## **Analysis Plans**

The mean, standard deviation, median and range for the time taken to complete critical appraisals, check appraisals, and reach consensus for each tool type will be calculated.

Normality will be assessed using the Shapiro-Wilk test. If data are normal, repeated measures ANOVA will compare mean times across tools, with Bonferroni-corrected post-hoc t-tests for significant differences. If not, the Friedman test will compare median times, followed by Bonferroni-corrected Dunn's or Conover's tests. Sphericity will also be checked to ensure consistent variability between conditions. Inter-observer agreement levels between two reviewers will be quantified using Cohen's Kappa statistic.

### **Possible Problems in Implementing This SWAR**

The primary outcome relies on the accurate measurement of the time to complete the critical appraisals. It is possible that other distractions such as emails and notifications may distract a reviewer when completing a critical appraisal. To guard against this, reviewers will turn all notifications off and set their availability to "busy - do not disturb". A stopwatch will be used. When assessing an individual paper multiple times, it is likely that familiarity with the paper will mean that the later appraisal will be quicker to complete. To prevent this, the order that each tool is used will be randomised across the papers for each reviewer.

### **References**

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2. Speckemeier C, Niemann A, Wasem J, Buchberger B, Neusser S. Methodological guidance for rapid reviews in healthcare:: A scoping review. *Research Synthesis Methods* 2022;13(4):394-404.
3. Tricco AC, Antony J, Zarin W, Striffler L, Ghassemi M, Ivory J, et al. A scoping review of rapid review methods. *BMC Medicine* 2015;13:224.
4. Moher D, Stewart L, Shekelle P. All in the family: systematic reviews, rapid reviews, scoping reviews, realist reviews, and more. *Systematic Reviews* 2015;4(1):183.
5. Duval D, Pearce-Smith N, Palmer JC, Sarfo-Annin JK, Rudd P, Clark R. Critical appraisal in rapid systematic reviews of COVID-19 studies: implementation of the Quality Criteria Checklist (QCC). *Systematic Reviews* 2023;12(1):55.
6. Hartling L, Ospina M, Liang Y, Dryden DM, Hooton N, Krebs Seida J, et al. Risk of bias versus quality assessment of randomised controlled trials: cross sectional study. *BMJ* 2009;339:b4012.
7. Hartling L, Bond K, Vandermeer B, Seida J, Dryden DM, Rowe BH. Applying the risk of bias tool in a systematic review of combination long-acting beta-agonists and inhaled corticosteroids for persistent asthma. *PLoS One* 2011;6(2):e17242.
8. Robertson C, Ramsay C, Gurung T, Mowatt G, Pickard R, Sharma P. Practicalities of using a modified version of the Cochrane Collaboration risk of bias tool for randomised and non-randomised study designs applied in a health technology assessment setting. *Research Synthesis Methods* 2014;5(3):200-11.
9. Devane D, Burke NN, Treweek S, Clarke M, Thomas J, Booth A, et al. Study within a review (SWAR). *Journal of Evidence-Based Medicine* 2022;15(4):328-32.

### **Publications or presentations of this SWAR design**

### **Examples of the implementation of this SWAR**

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Date of revisions: