SWAR 47: Accuracy and time saved using the RCT Classifier in Covidence compared to screening as usual

Objective of this SWAR
The objective is to test the machine learning tool RCT Classifier, which is available in Covidence. We will compare what will happen when we remove the references labelled as ineligible and only screen the remaining potentially relevant references versus using the traditional independent screening of all the references.

Study area: Study Identification
Sample type: Review Authors
Estimated funding level needed: Unfunded

Background
Cochrane reviews aim to identify all relevant studies, usually randomized trials for reviews of the effects of health and social care interventions. However, this leads to broad literature searches, which contain a large proportion of irrelevant references. The Cochrane Collaboration therefore developed the RCT classifier, which is integrated into Covidence [1] and uses machine learning to help the user to quickly and accurately identify randomised trials. Because of its training with a dataset of more than 280,000 records, this classifier boasts an impressive sensitivity: >99.5%.[2]

The RCT classifier automatically marks ineligible references such that all records that are not randomised trials can be excluded quickly. Hence, fewer references that appear not to meet the inclusion criteria for study design will go forward for screening by human reviewers. This Study Within a Review (SWAR) [3] will test what happens when we remove the references labelled as ineligible and only screen the remaining potentially relevant references compared to using the traditional independent screening of all the references. We will measure and report the total time spent on screening for both approaches, the number of references passed forward to full text screening and if any included studies get lost due to the use of the machine learning tool.

Hopefully, the RCT classifier will be safe and will not miss any eligible randomised trials, while allowing time saving and reduced effort for manually screening articles through the removal of records reporting on non-randomised trials before that screening.

We will implement this SWAR in a Cochrane review of education and training interventions for healthcare workers to prevent sexual harassment.[4]

Interventions and Comparators
Intervention 1: Remove references reporting on non-randomised trials before screening using the RCT classifier in Covidence.
Intervention 2: Usual independent screening of references in Covidence by two human reviewers.

Index Type: Searching

Method for Allocating to Intervention or Comparator:
Non-Random

Outcome Measures
Primary: Time taken to identify records for full-text screening.
Secondary: Relevant references identified.

Analysis Plans
Comparison of the outcomes from SWAR interventions 1 and 2.

Possible Problems in Implementing This SWAR
We have not identified any possible problems.

References

1. Covidence. Available at https://www.covidence.org/
2. Thomas J, McDonald S, Noel-Storr A, Shemilt I, Elliott J, Mavergames C, Marshall IJ. Machine learning reduced workload with minimal risk of missing studies: development and evaluation of a randomized controlled trial classifier for Cochrane Reviews. Journal of Clinical Epidemiology 2021;133:140-51. doi: 10.1016/j.jclinepi.2020.11.003.
3. 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. doi: 10.1111/jebm.12505.
4. Dalsbø TK, Greve RA, Jørgensen IL, Fønhus MS. Education and training interventions for healthcare workers to prevent sexual harassment. Cochrane Database of Systematic Reviews 2025;(2): CD016096. doi: 10.1002/14651858.CD016096.

Publications or presentations of this SWAR design

Dalsbø TK, Greve RA, Jørgensen IL, Fønhus MS. Education and training interventions for healthcare workers to prevent sexual harassment. Cochrane Database of Systematic Reviews 2025;(2): CD016096. doi: 10.1002/14651858.CD016096.

Examples of the implementation of this SWAR

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