

Evaluating Published Systematic Reviews

Systematic Review Training

Center for Knowledge Management

VANDERBILT  UNIVERSITY
MEDICAL CENTER

A stack of several books with white and brown covers is shown on a wooden surface. The books are slightly out of focus, and the background is a warm, light-colored gradient.

Objectives:

- ✓ *Discuss factors to consider when assessing the quality of systematic reviews*
- ✓ *List tools for critically appraising systematic reviews*

Tools for evaluating systematic reviews

- A MeaSurement Tool to Assess Systematic Reviews (AMSTAR 2): Critical appraisal instrument to assess the quality of systematic reviews
- JBI Critical Appraisal Checklist for Systematic Reviews and Research Syntheses
- ROBIS: Tool to assess risk of bias in systematic reviews

JBI critical appraisal tools [Internet]. Joanna Briggs Institute. [cited 2023 Sep 28]. Available from: <https://jbi.global/critical-appraisal-tools>.

ROBIS: Tool to assess risk of bias in systematic reviews Phase 1: Assessing relevance (Optional) [Internet]. Bristol.ac.uk. [cited 2023 Sep 28]. Available from: <https://www.bristol.ac.uk/media-library/sites/social-community-medicine/robis/ROBIS%201.2%20Clean.pdf>.

Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J, Moher D, Tugwell P, Welch V, Kristjansson E, Henry DA. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. BMJ. 2017 Sep 21;358:j4008. doi: 10.1136/bmj.j4008. PMID: [28935701](https://pubmed.ncbi.nlm.nih.gov/28935701/); PMCID: [PMC5833365](https://pubmed.ncbi.nlm.nih.gov/pmc/articles/PMC5833365/).

A Measurement Tool to Assess Systematic Reviews (AMSTAR 2)

- A critical appraisal tool used to assess systematic reviews of randomized controlled trials and non-randomized studies of interventions
- Includes 16-items

AMSTAR 2

1. Did the research questions and inclusion criteria for the review include the components of PICO?		
For Yes: <input type="checkbox"/> Population <input type="checkbox"/> Intervention <input type="checkbox"/> Comparator group <input type="checkbox"/> Outcome	Optional (recommended) <input type="checkbox"/> Timeframe for follow-up	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?		
For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following: <input type="checkbox"/> review question(s) <input type="checkbox"/> a search strategy <input type="checkbox"/> inclusion/exclusion criteria <input type="checkbox"/> a risk of bias assessment	For Yes: As for partial yes, plus the protocol should be registered and should also have specified: <input type="checkbox"/> a meta-analysis/synthesis plan, if appropriate, <i>and</i> <input type="checkbox"/> a plan for investigating causes of heterogeneity <input type="checkbox"/> justification for any deviations from the protocol	<input type="checkbox"/> Yes <input type="checkbox"/> Partial Yes <input type="checkbox"/> No
3. Did the review authors explain their selection of the study designs for inclusion in the review?		
For Yes, the review should satisfy ONE of the following: <input type="checkbox"/> <i>Explanation for</i> including only RCTs <input type="checkbox"/> <i>OR Explanation for</i> including only NRSI <input type="checkbox"/> <i>OR Explanation for</i> including both RCTs and NRSI		<input type="checkbox"/> Yes <input type="checkbox"/> No
4. Did the review authors use a comprehensive literature search strategy?		
For Partial Yes (all the following): <input type="checkbox"/> searched at least 2 databases (relevant to research question) <input type="checkbox"/> provided key word and/or search strategy <input type="checkbox"/> justified publication restrictions (e.g. language)	For Yes, should also have (all the following): <input type="checkbox"/> searched the reference lists / bibliographies of included studies <input type="checkbox"/> searched trial/study registries <input type="checkbox"/> included/consulted content experts in the field <input type="checkbox"/> where relevant, searched for grey literature <input type="checkbox"/> conducted search within 24 months of completion of the review	<input type="checkbox"/> Yes <input type="checkbox"/> Partial Yes <input type="checkbox"/> No

AMSTAR 2 Critical Domains

Box 1: AMSTAR 2 critical domains

- Protocol registered before commencement of the review (item 2)
- Adequacy of the literature search (item 4)
- Justification for excluding individual studies (item 7)
- Risk of bias from individual studies being included in the review (item 9)
- Appropriateness of meta-analytical methods (item 11)
- Consideration of risk of bias when interpreting the results of the review (item 13)
- Assessment of presence and likely impact of publication bias (item 15)

Overall confidence in the results of a review

Rating	#Critical flaws	#Non-critical flaws	Explanation
High	0	1 or fewer	Accurate and comprehensive
Moderate	0	More than 1	May be accurate
Low	1	0 or more	May not be accurate and comprehensive
Critically low	More than 1	0 or more	Not reliable as an accurate and comprehensive summary

JBI CRITICAL APPRAISAL CHECKLIST FOR SYSTEMATIC REVIEWS AND RESEARCH SYNTHESSES

Reviewer _____ Date _____

Author _____ Year _____ Record Number _____

	Yes	No	Unclear	Not applicable
1. Is the review question clearly and explicitly stated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Were the inclusion criteria appropriate for the review question?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Was the search strategy appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Were the sources and resources used to search for studies adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Were the criteria for appraising studies appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Was critical appraisal conducted by two or more reviewers independently?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Were there methods to minimize errors in data extraction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Were the methods used to combine studies appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Was the likelihood of publication bias assessed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Were recommendations for policy and/or practice supported by the reported data?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Were the specific directives for new research appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Overall appraisal: Include Exclude Seek further info

Comments (Including reason for exclusion)

ROBIS

Domains (Identifying concerns with the review process):

1. Study eligibility criteria
2. Identification and selection of studies
3. Data collection and study appraisal
4. Synthesis and findings

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Signaling questions (yes, probably yes, probably no, no, no information):

1. Did the review adhere to pre-defined objectives and eligibility criteria?
2. Were the eligibility criteria appropriate for the review question?
3. Were the eligibility criteria unambiguous?
4. Were any restrictions in eligibility criteria based on study characteristics appropriate (e.g. date, sample size, study quality, outcomes measured)?
5. Were any restrictions in eligibility criteria based on sources of information appropriate (e.g. publication status or format, language, availability of data)?

Concerns regarding specification of study eligibility criteria?
(low, high, unclear)

Rationale for concern:

ROBIS

Domains (Summarize concerns with the review process):

1. Study eligibility criteria
2. Identification and selection of studies
3. Data collection and study appraisal
4. Synthesis and findings

Describe whether conclusions were supported by the evidence: (yes, probably yes, probably no, no, no information):

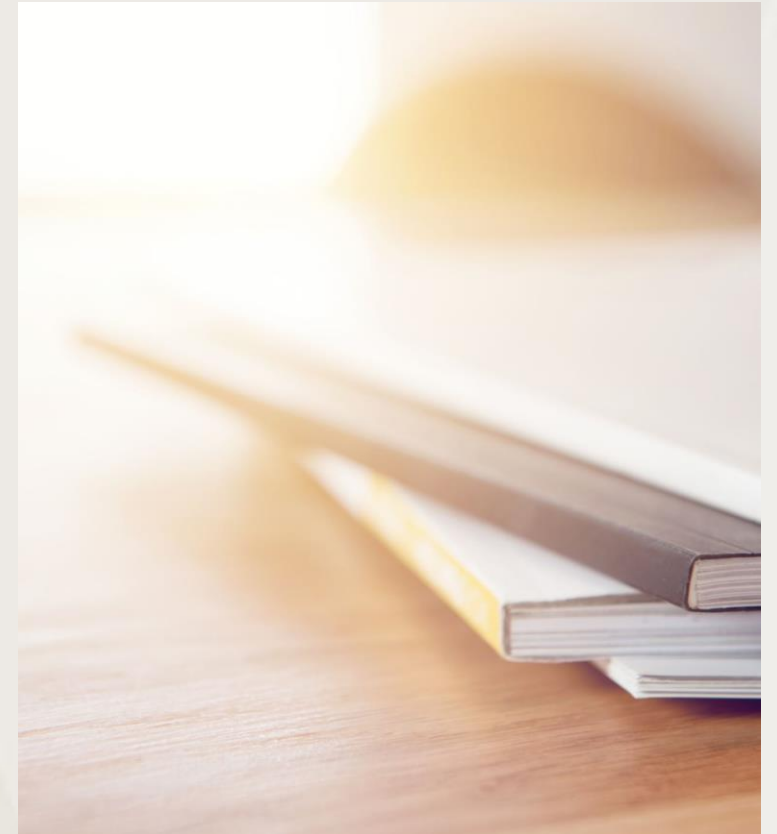
1. Did the interpretation of findings address all of the concerns identified in Domains 1 to 4?
2. Was the relevance of identified studies to the review's research question appropriately considered?
3. Did the reviewers avoid emphasizing results on the basis of their statistical significance?

Risk-of-bias in the review (low, high, unclear)

Rationale for risk:

Recap

- Factors to consider when assessing the quality of systematic reviews
- Tools for evaluating systematic reviews
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Presented by
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