

AMSTAR Checklist  
 Article Name:

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or nonrandomised studies of healthcare interventions, or both

**1. Did the research questions and inclusion criteria for the review include the components of PICO?**

For Yes:	Optional (recommended)	
<input type="checkbox"/> Population	<input type="checkbox"/> Timeframe for follow up	<input type="checkbox"/> Yes
<input type="checkbox"/> Intervention		<input type="checkbox"/> No
<input type="checkbox"/> Comparator group		
<input type="checkbox"/> Outcome		

**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:	For Yes:	
The authors state that they had a written protocol or guide that included ALL the following:	As for partial yes, plus the protocol should be registered and should also have specified:	
<input type="checkbox"/> review question(s)	<input type="checkbox"/> a meta-analysis/synthesis plan, if appropriate, <i>and</i>	<input type="checkbox"/> Yes
<input type="checkbox"/> a search strategy	<input type="checkbox"/> a plan for investigating causes of heterogeneity	<input type="checkbox"/> Partial Yes
<input type="checkbox"/> inclusion/exclusion criteria	<input type="checkbox"/> a plan for investigating causes of heterogeneity	<input type="checkbox"/> No
<input type="checkbox"/> a risk of bias assessment		

**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"/> Yes
<input type="checkbox"/> OR <i>Explanation for</i> including only NRSI	<input type="checkbox"/> No
<input type="checkbox"/> OR <i>Explanation for</i> including both RCTs and NRSI	

**4. Did the review authors use a comprehensive literature search strategy?**

For Partial Yes (all the following):	For Yes, should also have (all the following):	
<input type="checkbox"/> searched at least 2 databases (relevant to research question)	<input type="checkbox"/> searched the reference lists / bibliographies of included studies	<input type="checkbox"/> Yes
<input type="checkbox"/> provided key word and/or search strategy	<input type="checkbox"/> searched trial/study registries	<input type="checkbox"/> Partial Yes
<input type="checkbox"/> justified publication restrictions (e.g. language)	<input type="checkbox"/> included/consulted content experts in the field	<input type="checkbox"/> No
	<input type="checkbox"/> where relevant, searched for grey literature	
	<input type="checkbox"/> conducted search within 24 months of completion of the review	

**5. Did the review authors perform study selection in duplicate?**

For Yes, either ONE of the following:

<input type="checkbox"/> at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include	<input type="checkbox"/> Yes
<input type="checkbox"/> OR two reviewers selected a sample of eligible studies <u>and</u> achieved good agreement (at least 80 percent), with the remainder selected by one reviewer.	<input type="checkbox"/> No

**6. Did the review authors perform data extraction in duplicate?**

For Yes, either ONE of the following:

<input type="checkbox"/> at least two reviewers achieved consensus on which data to extract from included studies	<input type="checkbox"/> Yes
<input type="checkbox"/> OR two reviewers extracted data from a sample of eligible studies <u>and</u> achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer.	<input type="checkbox"/> No

**7. Did the review authors provide a list of excluded studies and justify the exclusions?**

For Partial Yes:

- provided a list of all potentially relevant studies that were read in full-text form but excluded from the review

For Yes, must also have:

- Justified the exclusion from the review of each potentially relevant study

- Yes  
 Partial Yes  
 No

**8. Did the review authors describe the included studies in adequate detail?**

For Partial Yes (ALL the following):

- described populations  
 described interventions  
 described comparators  
 described outcomes  
 described research designs

For Yes, should also have ALL the following:

- described population in detail  
 described intervention in detail (including doses where relevant)  
 described comparator in detail (including doses where relevant)  
 described study's setting  
 timeframe for follow-up

- Yes  
 Partial Yes  
 No

**9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?**

**RCTs**

For Partial Yes, must have assessed RoB from

- unconcealed allocation, *and*  
 lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality)

For Yes, must also have assessed RoB from:

- allocation sequence that was not truly random, *and*  
 selection of the reported result from among multiple measurements or analyses of a specified outcome

- Yes  
 Partial Yes  
 No  
 Includes only NRSI

**NRSI**

For Partial Yes, must have assessed RoB:

- from confounding, *and*  
 from selection bias

For Yes, must also have assessed RoB:

- methods used to ascertain exposures and outcomes, *and*  
 selection of the reported result from among multiple measurements or analyses of a specified outcome

- Yes  
 Partial Yes  
 No  
 Includes only NRSI

**10. Did the review authors report on the sources of funding for the studies included in the review?**

For Yes

- Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies

- Yes  
 No

**11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?**

**RCTs**

For Yes:

- The authors justified combining the data in a meta-analysis  
 AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present.  
 AND investigated the causes of any heterogeneity

- Yes  
 No  
 No meta-analysis conducted

**For NRSI**

For Yes:

- The authors justified combining the data in a meta-analysis  
 AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present

- Yes  
 No

- AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available  No meta-analysis conducted
- AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review

**12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?**

For Yes:

- included only low risk of bias RCTs  Yes
- OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect.  No
- No meta-analysis conducted

**13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review?**

For Yes:

- included only low risk of bias RCTs  Yes
- OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results  No

**14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?**

For Yes:

- There was no significant heterogeneity in the results  Yes
- OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review  No

**15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?**

For Yes:

- performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias  Yes
- No  No meta-analysis conducted

**16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?**

For Yes:

- The authors reported no competing interests OR  Yes
- The authors described their funding sources and how they managed potential conflicts of interest  No

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