



# PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
<b>TITLE</b>			
Title	1	Identify the report as a systematic review.	Page 1
<b>ABSTRACT</b>			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Page 2
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Lines 29-32
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Lines 32-34
<b>METHODS</b>			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Lines 54-74
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Lines 76-84
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Lines 85-88
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Lines 89-93
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Lines 95-98
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Lines 98-104
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Supp Table 3
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Lines 106 - 115
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Lines 113-125
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Lines 113-125
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Lines 113-125
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Lines 113-125
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Lines 113-125
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Not applied
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Not applied
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Lines 113-125



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Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Lines 113-125
<b>RESULTS</b>			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Lines 127 – 135 and Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Lines 133-134
Study characteristics	17	Cite each included study and present its characteristics.	Line 137 = Table 1
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Supp Table 4
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Table 2,3 and 4
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Not applicable
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Not applicable
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Not applicable
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Not applicable
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Not applicable
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Not applicable
<b>DISCUSSION</b>			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Lines 180-186
	23b	Discuss any limitations of the evidence included in the review.	Lines 235-241
	23c	Discuss any limitations of the review processes used.	
	23d	Discuss implications of the results for practice, policy, and future research.	
<b>OTHER INFORMATION</b>			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Line 37
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Line 37-38
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Not applicable



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Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Page 12 of manuscript
Competing interests	26	Declare any competing interests of review authors.	
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	

*From:* Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71

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

<p><b>1. Did the research questions and inclusion criteria for the review include the components of PICO?</b></p>		
<p>For Yes:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Population</li> <li><input checked="" type="checkbox"/> Intervention</li> <li><input checked="" type="checkbox"/> Comparator group</li> <li><input checked="" type="checkbox"/> Outcome</li> </ul>	<p>Optional (recommended)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Timeframe for follow-up</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Yes</li> <li><input type="checkbox"/> No</li> </ul>
<p><b>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?</b></p>		
<p>For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> review question(s)</li> <li><input checked="" type="checkbox"/> a search strategy</li> <li><input checked="" type="checkbox"/> inclusion/exclusion criteria</li> <li><input checked="" type="checkbox"/> a risk of bias assessment</li> </ul>	<p>For Yes: As for partial yes, plus the protocol should be registered and should also have specified:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> a meta-analysis/synthesis plan, if appropriate, <i>and</i></li> <li><input type="checkbox"/> a plan for investigating causes of heterogeneity</li> <li><input type="checkbox"/> justification for any deviations from the protocol</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Yes</li> <li><input type="checkbox"/> Partial Yes</li> <li><input type="checkbox"/> No</li> </ul>
<p><b>3. Did the review authors explain their selection of the study designs for inclusion in the review?</b></p>		
<p>For Yes, the review should satisfy ONE of the following:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>Explanation for</i> including only RCTs</li> <li><input checked="" type="checkbox"/> <i>OR Explanation for</i> including only NRSI</li> <li><input type="checkbox"/> <i>OR Explanation for</i> including both RCTs and NRSI</li> </ul>		
<p><b>4. Did the review authors use a comprehensive literature search strategy?</b></p>		
<p>For Partial Yes (all the following):</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> searched at least 2 databases (relevant to research question)</li> <li><input checked="" type="checkbox"/> provided key word and/or search strategy</li> <li><input checked="" type="checkbox"/> justified publication restrictions (e.g. language)</li> </ul>	<p>For Yes, should also have (all the following):</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> searched the reference lists / bibliographies of included studies</li> <li><input checked="" type="checkbox"/> searched trial/study registries</li> <li><input checked="" type="checkbox"/> included/consulted content experts in the field</li> <li><input checked="" type="checkbox"/> where relevant, searched for grey literature</li> <li><input checked="" type="checkbox"/> conducted search within 24 months of completion of the review</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Yes</li> <li><input type="checkbox"/> Partial Yes</li> <li><input type="checkbox"/> No</li> </ul>
<p><b>5. Did the review authors perform study selection in duplicate?</b></p>		
<p>For Yes, either ONE of the following:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include</li> <li><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.</li> </ul>		

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<p><b>6. Did the review authors perform data extraction in duplicate?</b></p> <p>For Yes, either ONE of the following:</p> <p><input checked="" type="checkbox"/> at least two reviewers achieved consensus on which data to extract from included studies <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</span></p> <p><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.</p>		
<p><b>7. Did the review authors provide a list of excluded studies and justify the exclusions?</b></p> <p>For Partial Yes: <span style="float: right;">For Yes, must also have:</span></p> <p><input checked="" type="checkbox"/> provided a list of all potentially relevant studies that were read in full-text form but excluded from the review <span style="float: right;"><input checked="" type="checkbox"/> Justified the exclusion from the review of each potentially relevant study <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> Partial Yes <input type="checkbox"/> No</span></span></p>		
<p><b>8. Did the review authors describe the included studies in adequate detail?</b></p> <p>For Partial Yes (ALL the following): <span style="float: right;">For Yes, should also have ALL the following:</span></p> <p><input checked="" type="checkbox"/> described populations <span style="float: right;"><input checked="" type="checkbox"/> described population in detail <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> Partial Yes <input type="checkbox"/> No</span></span></p> <p><input checked="" type="checkbox"/> described interventions <span style="float: right;"><input checked="" type="checkbox"/> described intervention in detail (including doses where relevant)</span></p> <p><input checked="" type="checkbox"/> described comparators <span style="float: right;"><input checked="" type="checkbox"/> described comparator in detail (including doses where relevant)</span></p> <p><input checked="" type="checkbox"/> described outcomes <span style="float: right;"><input checked="" type="checkbox"/> described study's setting</span></p> <p><input checked="" type="checkbox"/> described research designs <span style="float: right;"><input checked="" type="checkbox"/> timeframe for follow-up</span></p>		
<p><b>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?</b></p>		
<p><b>RCTs</b></p> <p>For Partial Yes, must have assessed RoB from <span style="float: right;">For Yes, must also have assessed RoB from:</span></p> <p><input type="checkbox"/> unconcealed allocation, <i>and</i> <span style="float: right;"><input type="checkbox"/> allocation sequence that was not truly random, <i>and</i> <span style="float: right;"><input type="checkbox"/> Yes <input type="checkbox"/> Partial Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Includes only NRSI</span></span></p> <p><input type="checkbox"/> lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality) <span style="float: right;"><input type="checkbox"/> selection of the reported result from among multiple measurements or analyses of a specified outcome</span></p>		
<p><b>NRSI</b></p> <p>For Partial Yes, must have assessed RoB: <span style="float: right;">For Yes, must also have assessed RoB:</span></p> <p><input checked="" type="checkbox"/> from confounding, <i>and</i> <span style="float: right;"><input type="checkbox"/> methods used to ascertain exposures and outcomes, <i>and</i> <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> Partial Yes <input type="checkbox"/> No <input type="checkbox"/> Includes only RCTs</span></span></p> <p><input checked="" type="checkbox"/> from selection bias <span style="float: right;"><input type="checkbox"/> selection of the reported result from among multiple measurements or analyses of a specified outcome</span></p>		
<p><b>10. Did the review authors report on the sources of funding for the studies included in the review?</b></p> <p>For Yes</p> <p><input type="checkbox"/> 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 <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</span></p>		

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

**RCTs**

For Yes:

- |  |  |
|--|--|
| <input type="checkbox"/> The authors justified combining the data in a meta-analysis   | <input type="checkbox"/> Yes                                   |
| <input type="checkbox"/> AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present. | <input type="checkbox"/> No                                    |
| <input type="checkbox"/> AND investigated the causes of any heterogeneity  | <input checked="" type="checkbox"/> No meta-analysis conducted |

**For NRSI**

For Yes:

- |   |  |
|---|--|
| <input type="checkbox"/> The authors justified combining the data in a meta-analysis  | <input type="checkbox"/> Yes                                   |
| <input type="checkbox"/> AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present   | <input type="checkbox"/> No                                    |
| <input type="checkbox"/> 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 | <input checked="" type="checkbox"/> No meta-analysis conducted |
| <input type="checkbox"/> 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:

- |   |  |
|---|--|
| <input type="checkbox"/> included only low risk of bias RCTs  | <input type="checkbox"/> Yes                                   |
| <input type="checkbox"/> 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. | <input type="checkbox"/> No                                    |
|   | <input checked="" type="checkbox"/> 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:

- |  |   |
|--|---|
| <input type="checkbox"/> included only low risk of bias RCTs   | <input checked="" type="checkbox"/> Yes |
| <input checked="" type="checkbox"/> 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 | <input type="checkbox"/> 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:

- |   |   |
|---|---|
| <input type="checkbox"/> There was no significant heterogeneity in the results  |   |
| <input checked="" type="checkbox"/> 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 | <input checked="" type="checkbox"/> Yes |
|   | <input type="checkbox"/> 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:

- |   |  |
|---|--|
| <input type="checkbox"/> performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | <input type="checkbox"/> Yes                                   |
|   | <input type="checkbox"/> No                                    |
|   | <input checked="" type="checkbox"/> No meta-analysis conducted |

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

For Yes:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> The authors reported no competing interests OR  | <input checked="" type="checkbox"/> Yes |
| <input type="checkbox"/> The authors described their funding sources and how they managed potential conflicts of interest | <input type="checkbox"/> No             |

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