Systematic reviews and meta-analyses guidelines

SYSTEMATIC REVIEW [TITLE]

THE TITLE SHOULD BE IDENTIFIED THE REPORT AS A SYSTEMATIC REVIEW.

ABSTRACT [Maximum length 300 words]

The abstract should mention about five main subtopics: Background, methods, results, discussion, and other.

Background

- [ ] The main questions or objectives adressing by the review should be clearly expressed in this part. The references should not be used.

Methods

- [ ] The eligibility criteria should be clarified in this section such as, study designs, [Example: only randomised controlled trials], including participant eligibility criteria, interventions, settings and timepoints.
- [ ] The information sources such as databases, registers and the date when each was last searched should be specified.
- [ ] The methods used should be clarifed to discuss the risk of bias in the included studies.
- [ ] The methods used should also be specified to present and synthesise results.

Results

- [ ] The total number of included studies and participant should be presented in this section.
- [ ] Summarising the relevant characteristics is also necessary for this section.
- [ ] The results for main outcomes should be presented, preferably by indicating the number of included studies and participants for each.
- [ ] For meta-analyses, the results of overall effect should be estimated with %95 Cl. The risk changes or effect size should be expressed as absolute values rather than relative changes.
- [ ] If meta-analysis was done, report the summary estimate and confidence/credible interval. If comparing groups, indicate the direction of the effect (i.e. which group is favoured).

Discussion

- [ ] The brief summary should be provided to discuss the limitations of the evidence included in the review (e.g. study risk of bias, inconsistency and imprecision).
- [ ] The general interpretation of the results and important implications should be expressed on this section.

Other

- [ ] The primary source of funding for the review should de specified.
- [ ] The register name and registration number [PROSPERO] should be provided on this section.

INTRODUCTION

- [ ] The background of the study should be expressed by providing references for the data presented and all previous studies mentioned.
- [ ] Explain how this systematic-review can make contribution on the literature.
- [ ] Finally, the aim of the study should be expressed.

METHODS

- [ ] The section should start with the description. This section should answer the question whether this is a just systematic review or, it will include the meta analyses.
- [ ] As the eligibility criteria, two main topics should be clarified: study and report characteristics. The study characteristics consist of participants, interventions, comparators, outcomes, study design, setting, time frame. The report characteristics should contain years considered, language and publication status. So the reasons for study inclusion and exclusion should be clear.
- [ ] The information sources should be clarified in this section. These sources should include electronic databases, contact with study authors, trial registers, or other grey literature sources. If any unpublished studies identified is used to seek data, it also should be expressed.
- [ ] The draft of search strategy to be used for at least one electronic database should be clearly expressed. It should be repeated.
- [ ] The study records are the next step for this section. The study records should consist of three main things: data management, selection process, and data collection process. These three topic should be clearly stated.
- [ ] **Data management:** The mechanism(s) that will be used to manage records and data throughout the review.
- [ ] **Selection process:** The process that will be used for selecting studies (such as two independent reviewers).
- [ ] ***Data Collection Process:*** The planned method of extracting data from reports, any processes for obtaining and confirming data from investigators.
- [ ] All outcomes for which data will be sought (such as participants, interventions, comparators, and outcomes) ,and any pre-planned data assumptions and simplifications should be listed and defined.
- [ ] How you assessed the risk of bias in the included studies should be described. Were sensitivity analyses done, after exclusion of studies at high risk of bias?
- [ ] The effect measure used in the synthesis or presentation of results should be specified for each outcome.

Synthesis method should be consist of these subtopics:

- [ ] **1. Study Eligibility Criteria**: Begin by establishing clear criteria for the studies eligible for inclusion in your synthesis. This could involve tabulating the intervention characteristics of each study and comparing them to the planned groups outlined in your research plan (item #5). Ensure consistency between the planned groups and the actual interventions in the studies.
- [ ] **2. Data Preparation**: Pay meticulous attention to data preparation. Address any missing summary statistics using appropriate imputation methods to make your dataset as complete as possible. Standardize units and formats through data conversions to ensure uniformity across all included studies.
- [ ] **3. Results Presentation**: Use tables and visual displays to effectively present the results of individual studies. These visual aids should provide a clear and comprehensive overview of the collected data, making it easier for readers to grasp the findings.
- [ ] **4. Synthesis Methodology**: If conducting a meta-analysis, carefully select the appropriate model and statistical methods that align with your research questions. Identify and assess statistical heterogeneity using established techniques. Utilize reputable software packages for conducting the meta-analysis.
- [ ] **5. Exploring Heterogeneity**: Implement methods such as subgroup analysis and meta-regression to delve into potential sources of heterogeneity among study results. These analyses should help you understand factors contributing to variability in the outcomes.
- [ ] **6. Sensitivity Analysis**: Perform sensitivity analyses to evaluate the robustness of your synthesized results. This step is crucial for assessing the reliability and consistency of your findings, providing additional confidence in your research outcomes.

- [ ] Explain the approaches and techniques employed to evaluate the risk of bias associated with missing results in a synthesis, particularly those arising from reporting biases.
- [ ] Detail the methodologies utilized for appraising the level of certainty (or confidence) in the body of evidence pertaining to a specific outcome.

RESULTS

1. Search and Selection Process:

- [ ] • Describe the initial number of records identified in the search.
- [ ] • Outline the screening and selection process.

- [ ] • Create a flow diagram to illustrate the number of studies included and excluded at each stage.
- [ ] • Cite studies that appeared to meet inclusion criteria but were excluded, and explain the reasons for their exclusion.

2. Study Characteristics:

- [ ] • Present each included study's characteristics, such as author(s), publication year, study design, and setting.

3. Risk of Bias Assessment:

- [ ] • Assess the risk of bias for each included study using a recognized tool or framework (e.g., Cochrane Risk of Bias Tool).

4. Outcome Data Presentation:

For each study and for all relevant outcomes:

- [ ] • Provide summary statistics for each group (if applicable).
- [ ] • Present effect estimates and their precision, ideally using structured tables or plots. Include confidence intervals.

5. Synthesis of Studies:

- [ ] • Briefly summarize the characteristics and risk of bias among the studies that contribute to each synthesis.

6. Statistical Syntheses:

Present the results of all statistical syntheses conducted, including any meta-analyses:

- [ ] • Show the summary estimate and its precision (e.g., confidence intervals).
- [ ] • Report measures of statistical heterogeneity.
- [ ] • Describe the direction of the effect if comparing groups.

7. Heterogeneity Investigation:

- [ ] • Present the results of any investigations into possible causes of heterogeneity among study results.

8. Sensitivity Analyses:

- [ ] • Describe the results of all sensitivity analyses conducted to assess the robustness of the synthesized results.

9. Risk of Bias due to Missing Results:

- [ ] • Assess the risk of bias due to missing results, especially related to reporting biases, for each synthesis assessed.

10. Certainty in the Evidence:

- [ ] By following this structured outline, you can ensure a comprehensive and well-organized presentation of your systematic review results, making it easier for readers to understand the process and conclusions of your review.

DISCUSSION

- [ ] Offer a broad interpretation of the findings in relation to existing evidence in the field.

Limitations of Included Evidence:

- [ ] Examine any shortcomings or constraints associated with the evidence integrated into the review.

Limitations of Review Processes:

- [ ] Address any limitations or constraints related to the methodologies and procedures employed in the review.

Implications for Practice, Policy, and Future Research:

- [ ] Discuss the practical, policy-related, and research-related implications of the results, considering how they might inform decision-making, shape policy, and guide future research endeavors.

Other

- [ ] Provide details about the registration of the review, including the name of the register and the registration number, or state if the review was not registered.
- [ ] Indicate where interested parties can access the review protocol, or state if a protocol was not created for the review.
- [ ] Explain any changes or amendments made to the information provided during registration or detailed in the protocol.
- [ ] Describe both financial and non-financial sources of support for the review, and clarify the role of funders or sponsors in the review.
- [ ] Declare any competing interests that the authors of the review may have.

Report whether the following materials are publicly available and provide information on 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

Last Checks

- [ ] • The resolution of the images used should be of high quality.
- [ ] • Consent should be obtained from the patient for the use of images, and the source should be accurately referenced.
- [ ] • The references used should not be older than 7 years.
- [ ] • The tables used should be clear and informative.