

# Compliance with PRISMA reporting standards in systematic reviews

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## Introduction

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement is a checklist for authors containing a minimum set of reporting requirements for systematic reviews. Individual journals sign up as “endorsers” of PRISMA.

Within biomedical sciences there is a need for transparent reporting of methodologies to enable quality assessment and replication to test research findings. Standards, such as PRISMA, have been created for different study types to help to encourage better quality reporting.

The purpose of this research was to assess the level of compliance with the PRISMA checklist within a sample of papers from PRISMA endorsing journals.

## Methods

- Journal selection: a random sample of 25% of the 140 freely available PRISMA endorsing journals was selected by sequentially numbering an alphabetical list of journals titles and using a random number generator ([www.randomizer.org/form.htm](http://www.randomizer.org/form.htm))
- Issue selection: to reduce potential bias in choosing particular months the months of the year were ordered chronologically and numbered sequentially, then the random number generator was used to select two issues from 2013
- Article selection: systematic reviews were identified through hand searching the 66 selected journal issues (3 journals did not publish issues in the selected months) as the use of the category “Review” varied across journals. An inclusive approach to selection was taken. 31 articles were selected based on title abstract screening, 8 of which were excluded at full text screening because they were not systematic reviews. Articles that were overviews, mini reviews and literature reviews were not included
- Selection and retrieval of articles took place on 22/01/14
- Article assessment and data extraction: used the 2009 version of the PRISMA checklist and a data extraction table designed a priori
- A non-exhaustive literature search was undertaken in Library and Information Science (LIS) databases such as LISA and Proquest Library Science and the biomedical database Medline, searches combined terms including “prisma” or “reporting”, with “systematic review”

## Results and Discussion

- 67% of PRISMA criteria were met across all studies
- All studies included a structured summary
- All studies clearly stated their objectives
- All studies reported the results of their study selection
- All studies presented the results of their synthesis
- All studies provided a summary of the evidence
- 22 studies reported selection criteria for inclusion
- 21 studies reported the rationale for the review
- 21 studies reported the information sources searched
- 21 studies discussed their conclusions in relation to existing research and provided research recommendations
- 20 studies described as a systematic review in the title
- 20 studies reported the results of individual studies. Of the remaining three, two were narrative syntheses and the other included them in an online appendix
- 19 studies stated the selection process for inclusion
- 18 studies discussed the limitations of the systematic review
- Methods for data extraction, such as using standardised data extraction forms, were reported in 17 studies. 16 of these also reported the data items that were extracted
- Quality assessment of individual studies was reported in 16 studies. However, many did not report the tool used. Two studies reported publishing a protocol of the systematic review
- Only 14 reported the results of quality assessment and three included them in online appendices only
- Electronic search strategies were reported in varying detail in 14 studies:
  - 9 only supplied keywords used
  - 5 presented the full search strategy
  - 7 provided full search strategies in additional files
  - One study reported the keywords used but no full search strategy was available
- 12 studies described the methods for synthesising data, this was not applicable to narrative syntheses but two studies simply did not report this
- Only 9 of studies reported their source of funding
- Only three studies reported assessing bias such as publication bias, across the studies

## Conclusions

- Generally, compliance with PRISMA standards was good
- The criteria within PRISMA are most applicable to quantitative systematic reviews and qualitative reviews generally score poorly
- High quality reporting ensures the transparency and reproducibility of research.
- Inadequate reporting impairs fellow researchers’ ability to reproduce or build upon research
- Inadequate methodological reporting affects the ability of researchers and information professionals to assess methodological quality, especially where there may be a difference between what methods were used and their reporting
- Inadequate reporting makes it difficult to accurately judge potential sources of bias
- Assessing methodological quality is important when making decisions about how new evidence should affect practice, such as producing new syntheses of evidence and in producing guidance
- Improved reporting would also reduce the effort spent in devising, validating and using search filters to identify systematic reviews in bibliographic databases. If all systematic reviews identified themselves as such in the article title and in their structured abstracts then it would be feasible to reliably use a simple search filter such as “systematic review”.  
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- Improved identification of systematic reviews would also allow bibliographic database providers to auto-index such records, which would improve the reliability and consistency of built-in search filters
- Increased use of online appendices to report information, such as sources searched, may need to be reflected in the PRISMA

## Limitations

- Study selection and assessment against the PRISMA checklist were undertaken by a single researcher
- The sample of journals reviewed and the subset of articles assessed is small, therefore the results cannot be extrapolated but are indicative of general compliance

## Further research

- This study will be broadened to incorporate a larger sample of journals to enable broader conclusions to be reached