

## PRISMA: an attempt to improve standards for reporting systematic review and meta-analysis

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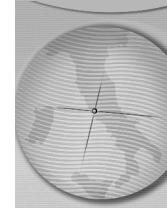
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The advent of evidence-based medicine has challenged our understanding on the merits of various sources of information. The opinion of experts has become the lowest level of the hierarchies of evidence, while meta-analysis reaches the top [1]. Meta-analysis is currently the most cited study design in health sciences and, along with systematic review, it has become increasingly important in health care. This is self evident if we consider its use as a starting point for implementing all practice guidelines [2]. A meta-analysis can be defined as the systematic and rigorous quantitative integration of information on the same research question [3,4]. It goes beyond a literature review as it synthesises the results of the individual studies into a new result [5]. A meta-analysis also differs from a pooled analysis (or individual patient data review) because it summarises the results of the previous studies in the analysis, and not just the results from individual subjects. Initially adopted to summarise results from clinical trials, meta-analyses found a wider application to observational studies. However, the growth of meta-analysis has not gone unchallenged. Combining data can improve statistical power when several small studies on the same research question are present, but simply putting problematic data together does not overcome their problems [6]. Studies might reach different conclusions depending on their quality, and negative studies might remain unpublished, so the results of a meta-analysis might be as strongly biased as those of any single study. In this context, beside getting a single summary estimate, meta-analysis is probably more useful for listing and dissecting sources of bias, exploring the differences between studies, quantifying heterogeneity, and proposing explanations for dissecting genuine heterogeneity from bias [6].

The reliability of the results from meta-analyses depends not only on a rigorous methodology, but also on the quality of reporting. This is where the

Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement comes in [7]. PRISMA provides a checklist of 27 items and a four-phase flow diagram for reporting systematic reviews and meta-analyses, and it has evolved from the previous QUality Of Reporting Meta-analyses (QUORUM) statement, which focused only on the reporting of randomized-controlled trials [8]. On the contrary, PRISMA statement can also be used as a basis for reporting systematic reviews of other types of research, and for the critical appraisal of published systematic reviews. The statement is followed by a detailed advisory paper on the explanation and elaboration of data [7]. The paper also provides an example of good reporting for each listed item, along with the rationale for its inclusion and supporting evidence, wherever possible.

The PRISMA statement does not pass judgment on how researcher should carry out the systematic review; rather it advocates the transparency, quality and completeness in reporting how it was performed and what was found out. Therefore, recommendations are predominantly intended for those who use systematic reviews and meta-analyses without being skilled epidemiologists, so that they can judge for themselves the value of that specific review\meta-analysis. This is the reason why the Italian Journal of Public Health joins other journals such as BMJ, Annals of Internal Medicine, and PLOS Medicine [9-11], in endorsing PRISMA. Should the Editor of the Italian Journal of Public Health make sure submitted papers adhere to the PRISMA guidelines from now on, or should the reviewer do the job? Our idea is to leave it up to the discretion of the authors, notwithstanding the due and proper check-up from the Editor in Chief and the Assistant Editor before the manuscript is sent to the peer review process. Should the manuscript reveal that authors ignore the existence of the PRISMA statement, they will be invited to resubmit a revised version of their



work, in compliance to the structure and contents suggested by Liberati et al [7].

The primary purpose of the Italian Journal of Public Health is to improve public health preventive strategies, based on the most valuable

scientific evidence. We adopted the PRISMA statement exactly to this purpose: to give a better understanding of our contents to the public health practitioners, who are after all the ones who will put this evidence into practice.

## References

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