

Characteristics and knowledge synthesis approach for 456 network meta-analyses: a scoping review

Summary

Network meta-analysis (NMA) has become a popular and useful method to compare the safety or effectiveness of multiple interventions across a network of studies. Since an in-depth assessment of the conduct and reporting of NMAs is lacking, we carried out a scoping review to explore the underlying characteristics and methodological quality of NMAs. It was revealed that the knowledge synthesis methods and analytical process for NMAs are poorly reported and need improvement.

Implications

The number of published NMAs has increased in recent years. Our scoping review of 456 NMAs revealed several reporting deficiencies and shortcuts in the knowledge synthesis methods used. Education amongst the research community is required to improve the quality of reporting and methodological quality of published NMAs.

Reference: Zarin W, Veroniki AA, Nincic V, et al. Characteristics and knowledge synthesis approach for 456 network meta-analyses: a scoping review. *BMC Med.* 2017;15(1):3.

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What is the current situation?

- Network meta-analysis (NMA) has become an increasingly popular and useful method to compare the efficacy or safety of multiple interventions
- The rapid development of NMA has raised concerns about the standardization and transparency of conduct and reporting of NMAs in scientific literature

What is the objective?

- To explore the characteristics and methodological quality of knowledge synthesis approaches of NMAs and assess the statistical methods applied using the Analysis subdomain of the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) checklist

How was the review conducted?

- Scoping review protocol developed using the methodological framework proposed by Arksey and O'Malley, as well as the Joanna Briggs Institute
- The literature search was conducted in MEDLINE, EMBASE, PubMed, and Cochrane Database of Systematic Reviews from inception until April 14, 2015
- Eligible studies compared at least four different interventions from randomised controlled trials with an appropriate NMA approach.
- Two reviewers independently performed study selection and data abstraction of included articles. All discrepancies between reviewers were resolved by a third reviewer. Data analysis involved quantitative (frequencies) and qualitative (content analysis) methods.
- Quality was evaluated using the AMSTAR tool for the conduct of knowledge synthesis and the ISPOR tool for statistical analysis

What did the review find?

- 456 NMAs, published between 1997 and 2015, were included in our scoping review, with 95% published after 2006
- Our scoping review revealed several reporting deficiencies and shortcuts in knowledge synthesis methods; only a quarter of the NMAs were rated high quality according to AMSTAR assessment
- One in six NMAs relied on previously conducted systematic reviews to establish the studies included in the NMA, and a quarter of these did not update the literature search
- Most authors failed to report the assumptions for heterogeneity used in the random-effects model, or explore reasons for heterogeneity when present