



Review Article

The Metabolic Syndrome and Cardiovascular Risk: A Systematic Review

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ABSTRACT

The metabolic syndrome is a cluster of interrelated risk factors that increase the risk of cardiovascular disease and type 2 diabetes. This systematic review and meta-analysis aims to synthesize the current evidence on the association between the metabolic syndrome and cardiovascular risk.

A comprehensive literature search was conducted in PubMed, Embase, and Cochrane Library databases from inception to August 2023. Observational studies reporting the relative risk or odds ratio of cardiovascular outcomes in individuals with the metabolic syndrome compared to those without were included. Two reviewers independently screened articles, extracted data, and assessed study quality. Random-effects meta-analyses were performed to pool effect estimates, and subgroup and sensitivity analyses were conducted. Subgroup analyses revealed that the strength of the association varied by the definition of the metabolic syndrome used, geographic region, and participant characteristics. Sensitivity analyses confirmed the robustness of the findings. In conclusion, metabolic syndrome is a significant risk factor for both fatal and non-fatal cardiovascular outcomes. The findings emphasize the importance of early identification and management of the metabolic syndrome to reduce the burden of cardiovascular disease. Healthcare providers should routinely screen for and address the individual components of the metabolic syndrome to improve patient outcomes.

Keywords: *metabolic syndrome, cardiovascular risk, systematic review*

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