

## The cardiovascular effects of methamphetamine: A scoping review

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**Introduction:** Methamphetamine is emerging as a global health concern, with increasing prevalence of use and significant harm associated with its consumption. The impact of methamphetamine on the nervous, immune, and respiratory systems has been well-documented. Research on the cardiovascular effects of the drug is less common.

**Method:** A scoping review was undertaken, following the PRISMA-ScR guidelines, to identify and map the cardiovascular effects of methamphetamine. Six databases (Medline/Ovid, Scopus, Web of Sciences, ProQuest Dissertation and Thesis, Cochrane Library, Google Scholar) were searched (1960 to 5th March 2022) for published and grey literature on the topic. Identified publications were grouped according to whether they were hypothesis-generating (descriptive) or hypothesis-testing (analytic) studies, with findings summarized and evidence gaps identified.

**Key Findings:** Seventy-eight publications were identified that addressed the cardiovascular effects of methamphetamine: 74% (58/78) were descriptive studies and 26% (20/78) were analytic studies. Available research lacked an equity focus, with an inadequate representation of people from communities with high methamphetamine use, especially women, gender-diverse, indigenous, and ethnic minorities. Methamphetamine use, its pattern of use, and route of administration were inconsistently reported. The cardiovascular functional abnormalities associated with methamphetamine in normal/asymptomatic users were increased heart rate, high blood pressure, and irregular heart rhythm. Commonly reported cardiovascular diseases (CVD) observed with regular methamphetamine use were cardiomyopathy/heart failure, coronary artery disease, stroke, arrhythmias, and hypertensive disorders.

**Conclusion:** Evidence suggests a potential causal association between methamphetamine and adverse cardiovascular outcomes. More high-quality analytic studies are needed, with an equity focus, before definitive conclusions can be made.

**Policy implications:** CVD diagnostic policies/tools should be amended to incorporate methamphetamine screening as part of cardiology patients' differential diagnoses. Moreover,

intervention/prevention strategies should be promoted to decrease the methamphetamine-attributable CVD burden.

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