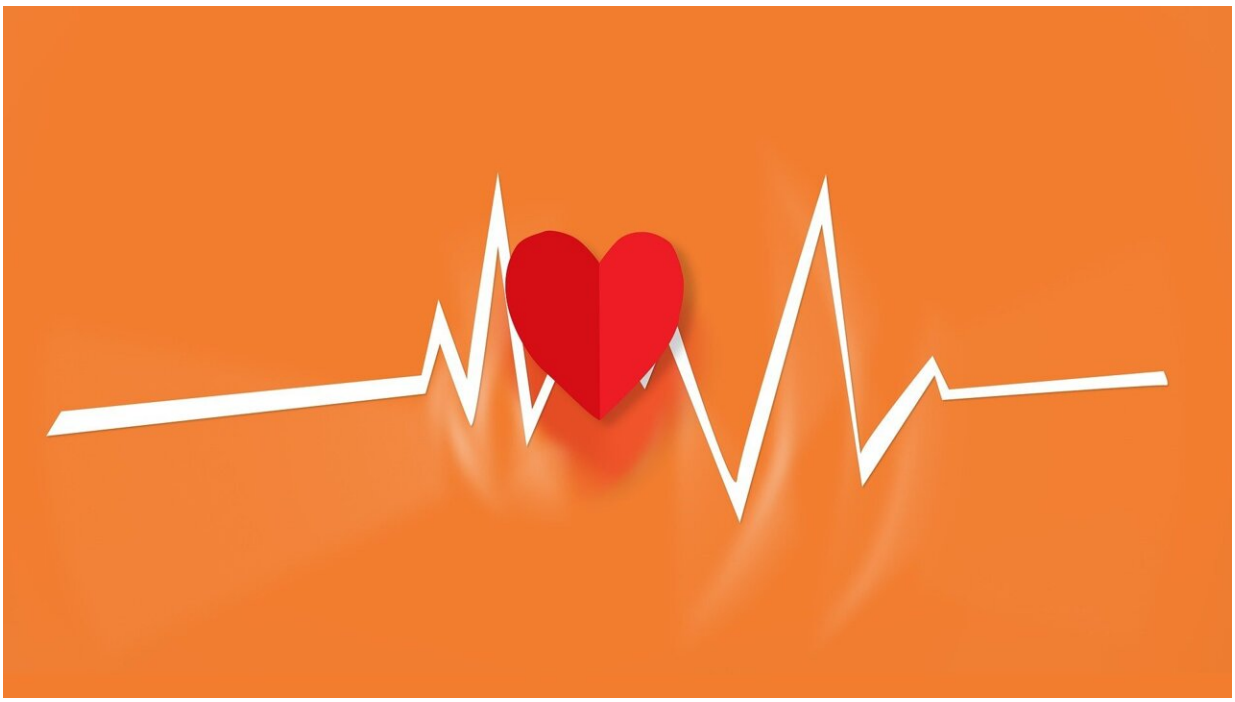
US heart disease deaths linked with substance use rose 4% per year between 1999-2019

January 10 2024



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Cardiovascular disease deaths involving substance use rose an average of 4% per year from 1999 to 2019, despite a drop in overall cardiovascular disease deaths, according to new research published today in the *Journal of the American Heart Association*.

"The study results were generally consistent with what we see in our clinic while caring for patients with cardiovascular disease," said study senior author Dmitry Abramov, M.D., a cardiologist and associate professor of medicine at Loma Linda University Health in Loma Linda, California.

"Although alcohol and opioids were the substances most associated with cardiovascular deaths, the increases in cardiovascular deaths related to stimulants (predominantly amphetamines) during the study period were particularly prominent," he continued. "This highlights both the ongoing risk of common substances, including alcohol and opioids, and also demonstrates the need to tackle amphetamines as a substance whose contribution to CVD deaths is growing more rapidly."

The researchers reviewed publicly available data from the Centers for Disease Control and Prevention's Wide-Ranging Online Data for Epidemiologic Research (WONDER) database to investigate death trends related to substance use from 1999 and 2019. The WONDER database aggregates death certificate data across the U.S. from the National Vital Statistics System.

The analysis found:

- The overall rate of substance use-related cardiovascular deaths increased from 9.9 per 100,000 population in 1999 to 21.4 per 100,000 population in 2019, representing an average annual increase of 4%.
- Increases in substance use-related average annual percent changes were noted across all subgroups and were pronounced among women (4.8%); American Indian or Alaskan individuals (5.4%); younger adults, ages 25-59 (5.3%); people living in rural areas (5%); people who used cannabis (12.7%) and psychostimulants (16.8%).

- 65% of cardiovascular disease deaths were related to alcohol, followed by opioids (13.7%), cocaine (9.8%), stimulants (6.5%), sedatives (4.1%) and cannabis (0.5%).
- The highest rate of change was noted among adults ages 25-39 (5.3%), followed by adults ages 55-69 (4.9%).
- The age-adjusted death rate was 15.2 per 100,000 in adults living in non-metropolitan/rural areas, 22.5 per 100,000 in men; and 37.7 per 100,000 in American Indian or Alaska Native adults.

"We were surprised to see significant increases among individuals ages 25 to 39, compared to other age groups and among people in certain racial and ethnic groups, including white adults and American Indian/Alaska Native adults. Identifying high-risk groups will be crucial for prioritizing preventive measures to reduce substance use-related cardiovascular disease deaths," Abramov said.

"In addition, while the rates of cardiovascular disease mortality related to substance use were higher in men than women, women demonstrated larger increases during the study period. Data from prior studies have found notable increases in substance use among women over the last 20 years, and women may face unique societal risks that may contribute to the increases noted in our study," he said. "These sex-based differences, in addition to the differences by race and ethnicity, age and living in an urban or rural community, require additional research."

Study background and details:

- Data from the CDC WONDER database from 1999-2019 included 636,572 substance use-related cardiovascular deaths. Of these, 75.6% were among men, and 70.6% of the individuals were non-Hispanic white people.
- Smoking/tobacco use was not included as a form of substance use in this study.

- The increases in substance use found in rural areas have been connected to socioeconomic vulnerabilities, access to health care and substance abuse treatment differences and will require further evaluation, the researchers noted.

The study's limitations included that causes of death noted on death certificates may have some miscoding errors, therefore, this would affect the data analysis since deaths attributable to cardiovascular disease were the original data source. In addition, the authors did not have information regarding cardiovascular disease risk factors, family histories of cardiovascular disease or initial measurements of other health conditions (such as high blood pressure and/or Type 2 diabetes diagnosis), as this information is not included in the WONDER database.

"We would like to see additional public health efforts to support comprehensive evaluation and management of substance use in the U.S. that includes clinician and patient education, as well as attention to socioeconomic factors that contribute to substance use," Abramov said. "Such efforts are critical in reversing the trends in CVD deaths associated with substance use and will hopefully lead to further reduction in the overall burden of heart disease and stroke."

More information: Temporal Trends in Substance Use and Cardiovascular Disease–Related Mortality in the United States, *Journal of the American Heart Association* (2024). DOI: 10.1161/JAHA.123.030969

Provided by American Heart Association