

Living near noise pollution tied to greater risk of heart attack

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Living in a noisy environment can be annoying, but it might also harm your health. People experiencing high levels of noise from cars, trains or planes were more likely to suffer a heart attack than people living in



quieter areas, according to a study presented at the American College of Cardiology's 71st Annual Scientific Session.

"When people talk about pollution, they're usually talking about particles in the air or water," said Abel E. Moreyra, MD, professor of medicine in the Division of Cardiology at Rutgers Robert Wood Johnson Medical School and the study's lead author. "But there are other forms of pollution, and <u>noise pollution</u> is one of these."

The study analyzed <u>heart</u> attack rates among nearly 16,000 New Jersey residents hospitalized for a heart attack in 2018 using data from the MIDAS database, a repository of all cardiovascular hospitalizations in the state. The average daily transportation noise experienced at home was calculated using data from the state's Bureau of Transportation Statistics.

Patients were divided into those experiencing high levels of transportation noise (an average of 65 decibels or higher over the course of the day) and those with low noise exposure (a daily average of less than 50 decibels). A <u>noise level</u> of 65 decibels is similar to a loud conversation or laughter. Since noise levels were averaged over the course of the day, Moreyra said that many people may have experienced periods of relative quiet that were interrupted by louder bursts such as trucks, trains or aircraft going by.

Overall results found that 5% of hospitalizations for heart attacks were attributable to elevated high <u>noise levels</u> in the state. The heart attack rate was 72% higher in places with high transportation noise exposure, with these areas seeing 3,336 heart attacks per 100,000 people compared with 1,938 heart attacks per 100,000 people in quieter areas. Based on the relative rates of <u>heart attack</u> in different locations, the researchers calculated that high noise exposure accounted for about 1 in 20 heart attacks in the state.



The study is among the first to examine noise and heart disease in the U.S., but the findings align with several previous studies conducted in Europe. New Jersey is a state with many dense urban areas in close proximity to roadways, train lines and three major airports. Moreyra said other urban areas with similar infrastructure and transportation noise would likely see a similar pattern.

"As cardiologists, we are used to thinking about many traditional risk factors such as smoking, hypertension or diabetes," Moreyra said. "This study and others suggest maybe we should start thinking about air pollution and noise pollution as additional risk factors for <u>cardiovascular</u> <u>disease</u>."

While the study did not investigate the biological mechanisms behind the association, Moreyra said noise can cause <u>chronic stress</u>, disturbances in sleep and emotional distress such as anxiety and depression, which could impact cardiovascular health. Chronic stress is known to cause hormonal changes linked with inflammation and changes in the blood vessels that are associated with heart disease.

Living near roadways and other transportation infrastructure also means greater exposure to vehicle exhaust and other forms of particulate air pollution. Previous studies have linked particulate air pollution with cardiovascular damage and increased rates of <u>heart disease</u>.

"Air pollution and noise go hand-in-hand," Moreyra said. "The question is: how much of this effect is due to particle pollution, and how much is noise?"

Researchers are beginning to disentangle those factors, but Moreyra said further research is needed to elucidate the effects of noise pollution on heart health.



The researchers did not attempt to account for demographic, socioeconomic or other health risk factors in their analysis, and they suggest further research could help tease apart the effect of noise pollution from these other factors. In addition, Moreyra said the study did not account for noise exposure at work or other locations. As a next step, the team plans to examine the data in more detail for insights into which sources of transportation noise may have the greatest health impact.

Moreyra said that a variety of policy interventions could help to reduce an individual's exposure to transportation noise at home, even in urban areas. Examples include better enforcement of noise ordinances, infrastructure to block road noise, rules for air traffic, low-noise tires for vehicles and better <u>noise</u> insulation for buildings.

More information: Conference: accscientificsession.acc.org/

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