

# Study finds blood pressure levels impacted by chronic occupational noise exposure

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Noise exposure is a known occupational hazard in some jobs, particularly for hearing loss, physical and psychological stress, and reduced concentration. A new study presented at the [ACC Asia 2024](#)

conference found in adult power loom weavers, chronic noise exposure not only increased their blood pressure overall, but also each year of exposure increased their odds of having high blood pressure by 10%.

"While the mechanism is still not well-explored, it is thought that the stress response by the body to chronic sound exposure causes hormonal imbalances that gradually leads to a permanent elevation of blood pressure," said Golam Dastageer Prince, MBBS, MPH, medical officer at DGHS Bangladesh and the study's lead author.

"High blood pressure impacts more than a billion people worldwide and just one in five have it under control, yet it is a major cause of premature death. In addition to treating the [high blood pressure](#) through appropriate means, we must find ways to mitigate the exposure to the noise if we want to reduce the cardiovascular risk of these patients."

Researchers at the Directorate of General Health Services in Bangladesh looked at 289 adult workers in selected weaving factories in the Araihasar sub-district of Narayanganj, Bangladesh, from January to December 2023. '

Participants took a face-to-face interview to complete a questionnaire covering sociodemographic variables, behavior, dietary habits and family medical history. Blood pressure, height, weight and noise intensity were measured following standard procedures by the researchers.

The study cohort was predominantly male and married and were about 34 years of age on average. According to the researchers, a notable proportion of the cohort was illiterate.

Workplace exposure duration averaged nearly 16 years, with noise intensity ranging from 96–111 decibels. In the United States, the

[National Institute for Occupational Safety and Health](#) has established the recommended exposure limits for occupational noise exposures to be 85 decibels on average over an eight-hour workday. Sounds at or below 70 decibels are generally considered safe.

According to Prince, none of the study population was found to be wearing ear protection or personal protective equipment.

"Hopefully, we can raise awareness of not only noise-induced hearing loss, but the impact of noise on blood pressure and workers' behaviors and attitudes towards using personal protective equipment," Prince said. "Pushing for structural improvements to industries may also help us improve the health safety of these workers."

The study population had a 31.5% rate of high blood pressure with an additional 53.3% being prehypertensive. The study also found a positive correlation between blood pressure and [noise exposure](#) duration. Each year of exposure was found to increase high blood pressure odds by 10%, even after adjusting for age, body mass index and smoking status.

"As the study focused on workers exposed to more than 85 decibels noise for long periods of time, any profession causing workers to experience similar exposure might experience similar blood pressure impacts," Prince said. "We definitely need more exploratory studies to reveal more information about the potential mechanisms and long-term health outcomes."

[Recent studies](#) have shown that living near [noise pollution](#), including highways, trains and air traffic, can have an impact on cardiovascular health.

However, the current study may not apply to noise experienced during daily life. Noise pollution experienced near home typically ebbs and

flows, while the industrial exposures in the study are typically continuous in pattern due to the machinery and remain at a constant sound level, according to Prince.

Provided by American College of Cardiology

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