Study: As temperatures and humidity rise, so do emergency room visits for heart conditions

Mon, 08/18/2025 - 14:30

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Andrew Yawn ayawn@tulane.edu

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A new study found that high humidity, when combined with extreme heat, was associated with a six times higher risk of a heart-related emergency room visit. (Photo by Shutterstock)

Extreme heat can be hard on your heart. As temperatures rise, the heart pumps faster to move blood toward the skin to cool the body. This added strain on the

cardiovascular system can increase the risk of heart attack or stroke, especially for those with existing heart conditions.

The danger can spike dramatically when combined with high humidity, according to a new study from Tulane University that found the risk of visiting the emergency room for a heart-related issue is six times higher during extremely hot and humid days.

The study, published in *Science of the Total Environment*, analyzed more than 340,000 emergency room visits for heart-related issues in Dhaka, Bangladesh, a city characterized by intense heat and humidity, from 2014 to 2019. Researchers modeled these visits against historical temperature and humidity data. While heat alone increased the risk of a heart-related emergency by 4.4% on low-humidity days, the risk jumped to 26.7% on the most humid days when relative humidity topped 82 percent.

“These findings show we need to consider heat and humidity together when we discuss any kind of climate change policy,” said first author Mostafijur Rahman, an assistant professor of environmental health sciences at the Celia Scott Weatherhead School of Public Health and Tropical Medicine at Tulane University. “We know extreme heat can have a negative health impact, but I never expected such a dramatic increase in risk when high humidity is also factored in.”

Researchers found no association between humidity alone and increased heart-related emergencies. High heat was defined as temperatures above 84 degrees Fahrenheit; exposure to high heat alone was associated with an 8% increase in heart-related emergency visits. However, humidity significantly magnified that risk when levels exceeded 80%. The increase was consistent across age and sex groups.

When combined with high heat, a high level of moisture in the air can limit sweat evaporation, the body’s key cooling mechanism, and force the heart to pump even harder.

The findings are especially significant because household air conditioning is uncommon in Dhaka, and Bangladesh consistently ranks among the countries estimated to be most vulnerable to climate change. As temperatures rise around the globe, Rahman hopes these findings encourage solutions in Bangladesh and similar countries, where exposure to high heat and humidity can drive up the risk of heat-related illness.

“There are billions around the world—from Southeast Asia to Africa—who are directly impacted by rising temperatures but have little access to air conditioning,” Rahman said. “Hopefully governments will be spurred to develop systems to warn cities of dangerous heat and humidity. For average citizens, it’s important to develop habits to beat the heat: stay hydrated, stay indoors, wear breathable clothing, and consider visiting air-conditioned public places like malls or libraries.”

The study was conducted in collaboration with New York University and the National Institute of Cardiovascular Diseases in Dhaka, Bangladesh.