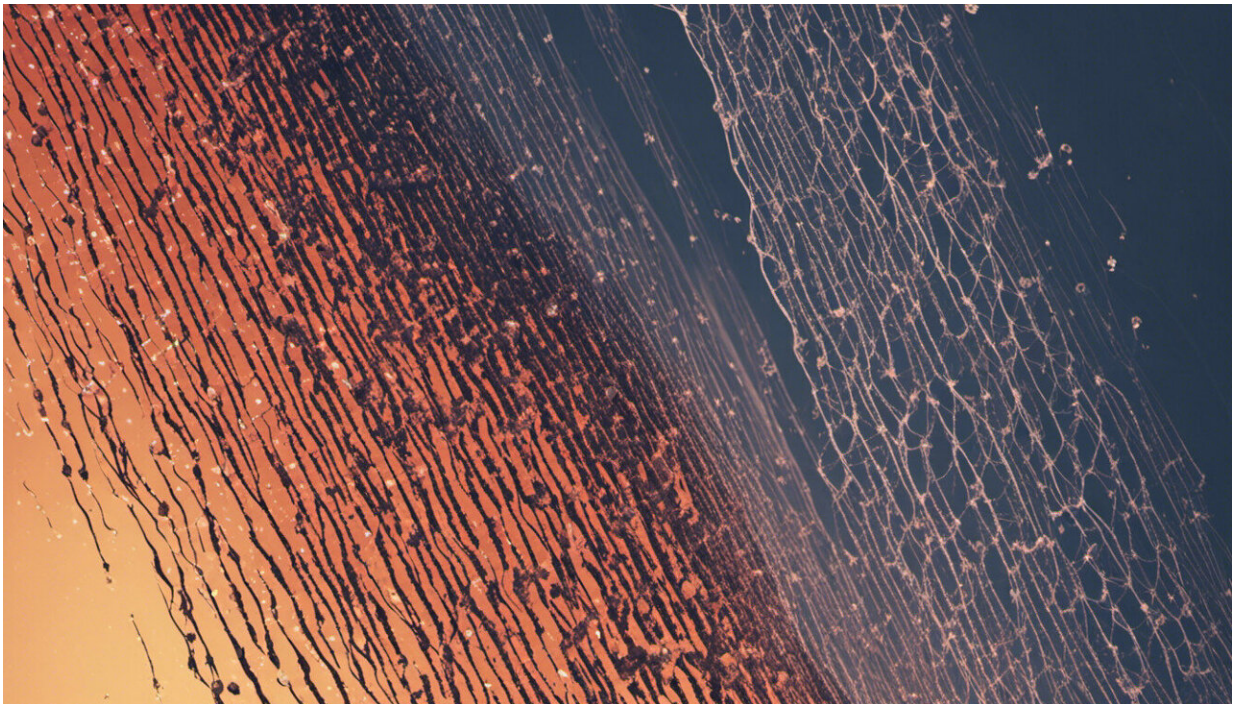


Weather patterns, farm income, other factors, may be influencing opioid crisis

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Credit: AI-generated image ([disclaimer](#))

The overprescribing of opioid-based painkillers may be the main driver of the increased abuse of opioids in rural America, but economists say that other factors, including declining farm income, extreme weather and other natural disasters, may affect a crisis that is killing thousands of citizens and costing the country billions of dollars.

In a study of relationships between socioeconomic variables and [opioid](#)-related drug overdoses, researchers found several correlations that are often not discussed in the current conversation about the nation's deaths of despair, which includes opioid overdoses, said Stephan Goetz, professor of agricultural and regional economics, Penn State and director of the Northeast Regional Center for Rural Development.

For example, a higher number of natural disasters experienced historically in a county is correlated with an increase in opioid overdoses, according to the researchers. They used presidentially declared disasters by county from FEMA—the Federal Emergency Management Agency—to determine the effect of [natural disasters](#) on opioid deaths. These disasters primarily include weather-related events, such as hurricanes, droughts and floods.

If climatologists' warnings are correct, a changing climate could produce more [extreme weather](#) patterns, which could then have an effect on opioid overdoses and deaths, said Goetz, who worked with Meri Davlasheridze, assistant professor in marine sciences, Texas A&M at Galveston.

Income also matters, according to the researchers. For each \$10,000 reduction in net income per farm, opioid overdoses rose by 10 percent from a national average of 10.2 deaths per 100,000 people to 11.2 deaths per 100,000 people. Opioid-related deaths are also increasing in rural counties, they added.

"Our results confirm that economic factors, including income especially and unemployment, as well as population density—or rurality—are important," said Goetz. "As we are controlling for [economic factors](#), population density appears to play an independent role in accounting for the disparate [death](#) rates."

Goetz added that it is important to use caution when interpreting this data.

"We are giving each county the same weight in our statistical analysis and the farming population is not that big—it's about one or two percent of the U.S. population," said Goetz. "But, there could be a spillover effect—if the farm income declines, the rest of the rural economy suffers."

Estimates indicate that opioid-related drug overdoses cost the country \$432 billion in 2015, according to the researchers, who presented their findings at a recent meeting of the Allied Social Sciences Association (ASSA) annual meeting in Philadelphia.

"To give some sense of this, the opioid crisis is a problem that is magnitudes of order larger than the costs associated with weather-related disasters in 2017," said Goetz. "This is a far-reaching problem—and it cuts across social, economic and political lines."

There are some glimmers of hope in the research, Goetz said. For example, overdoses among younger people seem to be declining, Goetz said. The highest rates of overdose are among people in the 45- to 64-year-old range.

Because the self-employed have lower rates of [overdose](#), the researchers suggest that self-employment also seems to be a deterrent against the opioid crisis.

"Sometimes we think of the self-employed, or entrepreneurs as more stressed and as people who might be looking for an escape from those pressures, but that doesn't appear to be the case in opioid use," said Goetz.

The researchers theorize that one reason this wave of opioid deaths may be higher in rural counties is because of the low number of mental-health treatment facilities in those areas and, perhaps, the stigma attached to seeking help in those facilities.

"There are far fewer mental-health treatment facilities, so if you have a problem, you might not know where to go for help," Goetz said. "We're thinking that one of the things we need to investigate in the future is whether awareness is the problem or is there a stigma? These are all important issues to consider and they could be addressed through educational or other programs."

Provided by Pennsylvania State University

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