Study highlights three US regions hit the hardest by deaths of despair since 2010

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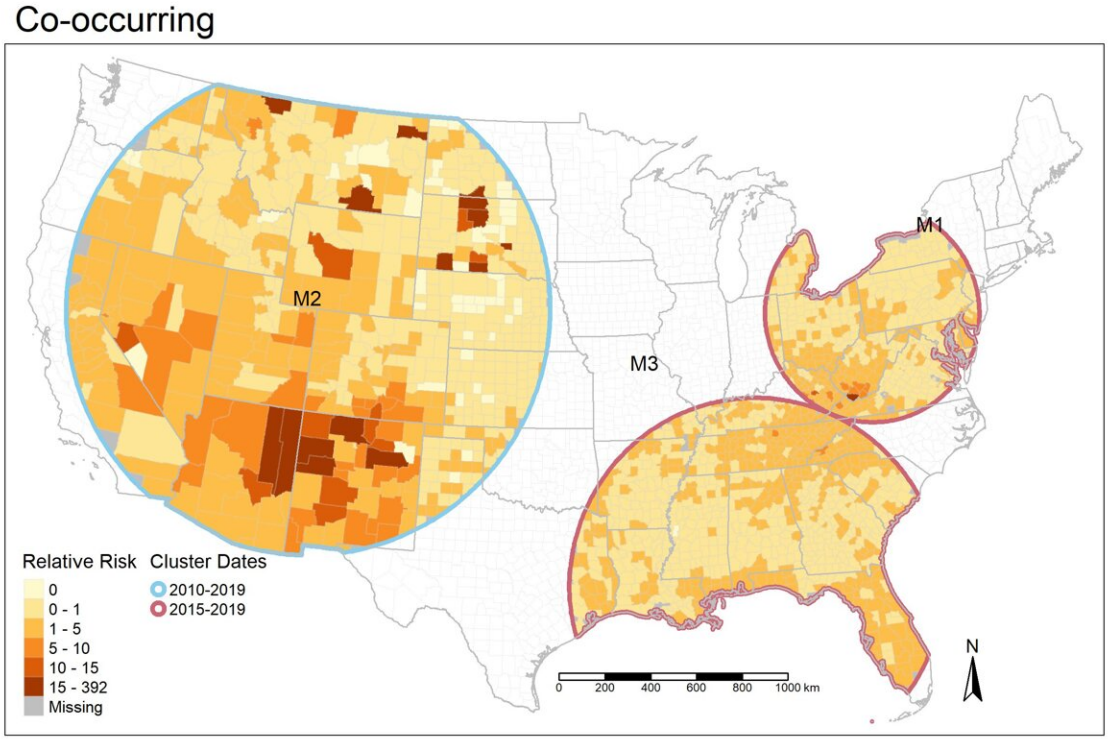

County relative risk and geographic location of space-time co-occurring clusters of deaths of despair in the United States, 2000-2019. Credit: *American Journal of Preventive Medicine*

A new study in the *American Journal of Preventive Medicine* identified three overlapping clusters of deaths of despair (i.e., suicide, overdose,

and chronic liver disease and cirrhosis deaths) across the United States since 2010.

Noting the sharp increase in deaths of despair documented in recent years, the investigators analyzed mortality data for individuals 10 years of age or older from 2000-2019 to detect geographic and temporal patterns. The findings showed six suicide clusters, four overdose clusters, nine alcohol-related liver disease clusters, which coincided in three large areas of the US west, southeast, and Appalachia/rust belt.

"Knowledge of geographic areas where suicide, overdose, and liver disease deaths are higher than expected, and where they coincide over multiple years, can help identify persistent clusters of deaths of despair that warrant public health intervention and continued or enhanced surveillance. Understanding which communities are at risk for co-occurring deaths of despair can assist public health entities to advocate for resources and funding to address the burden of mortality," explained lead investigator Danielle L. Steelesmith, Ph.D., Center for Suicide Prevention and Research, The Abigail Wexner Research Institute at Nationwide Children's Hospital, Columbus, OH, USA.

Overall, mortality rates in the US have been increasing since hitting an all-time low in 2014. Life expectancy stopped trending upward in this period. These developments correspond with the surge in deaths of despair, which increased from 22.7 to 45.8 per 100,000 persons from 2000 to 2017. Overdoses increased the most, but suicides and liver deaths were also on the rise.

Little research has examined how the different categories of deaths of despair map out geographically and within specific timeframes. This project is the first to employ the relatively new and innovative methodology of co-occurring clusters to better understand how the different components interact and cluster together. The clusters

identified for each type of death align with the times and places noted in prior research.

When the specific clusters were mapped out together, three large intersecting areas stood out, in the west (counties in Wyoming, Montana, Colorado, Idaho, Utah, and New Mexico), southeast (counties in Florida, Georgia, South Carolina, North Carolina, Mississippi, Alabama, Louisiana, Tennessee, Kentucky, and Illinois) and throughout Appalachia/rust belt regions (counties in West Virginia, Virginia, Ohio, Indiana, Michigan, Delaware, Maryland, Pennsylvania, and western New York).

"Our findings highlight specific regions and counties at increased risk for these deaths that can be analyzed further to improve our understanding of why deaths of despair have been increasing. In addition, we identified certain areas of concern outside of the co-occurring clusters, such as a growing suicide rate in Maine, New Hampshire, and Vermont, an excess of liver disease deaths in Rhode Island, and an alarming number of overdoses in eastern Oklahoma. These regions would benefit from more targeted interventions and prevention efforts," added Dr. Steelesmith.

More information: Danielle L. Steelesmith et al, Spatiotemporal Patterns of Deaths of Despair Across the U.S., 2000–2019, *American Journal of Preventive Medicine* (2023). DOI: 10.1016/j.amepre.2023.02.020

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