Research finds relationship between COVID-19 deaths, morbid obesity

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The prevalence of morbid obesity in a population is associated with negative outcomes from COVID-19, according to an analysis by researchers at The University of Alabama of morbid obesity data and

reported COVID-19 deaths in the United States.

In a paper published in the journal *World Medical and Health Policy*, researchers found a statistically significant relationship between the prevalence of morbid obesity and cases of—and deaths from—COVID-19, the disease caused by the novel coronavirus. The researchers suggest their findings can help identify resources needed for morbidly obese patients and inform mitigation policies.

"Health practitioners and policymakers need to understand the influence that morbid obesity has on negative COVID-19 outcomes in order to respond to this and similar emerging infectious diseases in the future," said Dr. Kevin Curtin, UA professor of geography.

Obesity is known to increase risk from respiratory infections and hinder pulmonary function, and there's an emerging pattern in the treatment of COVID-19 patients that obesity is a pervasive problem and associated with negative health outcomes such as requiring a ventilator.

"The current global pandemic of COVID-19, which is highly contagious with presumed high mortality rates, has dramatically increased the need to understand the association between obesity and negative health outcomes from respiratory disease, particularly death," said Dr. Lisa Pawloski, professor of anthropology and associate dean for international programs for the UA College of Arts & Sciences.

The researchers used deaths from COVID-19 compiled nationally at the county level by The New York Times and estimates of morbid obesity rates for each U.S. county derived from the National Health and Nutrition Examination Survey and population data from the U.S. Census Bureau. The research looked at adults aged 18 to 64 and found that morbid obesity rates are positively correlated with COVID-19 case and death rates, and that morbid obesity rates can explain 9 percent of the

variation in COVID-19 [death](link) rates.

"As a matter of practical importance, with the complex interactions that are likely to produce negative COVID-19 outcomes, any single variable that can explain more than 9 percent of the variation is worth examining further," Curtin said.

Moreover, by overlaying the data geographically the researchers found that spatial clusters of high rates of [morbid obesity](link) are associated with spatial clusters of high rates of COVID-19 deaths.

Although there are anecdotal reports of obesity complications in patients with COVID-19, most formal studies so far of this relationship have been in China, which has lower obesity rates, and in hospital settings. This work, the researchers say, is the first repeatable quantitative analysis that addresses this relationship.

The short term implications of the research could affect treatment and policy. Long term, the findings point to the need to strengthen public health efforts that address obesity.

"The findings suggest that areas with larger obese populations will need greater resources for effective treatment of COVID-19, as more cases and deaths should be expected as compared with the general population," Pawloski said.

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