

# Trauma researchers identify characteristics of communities where mass shootings occur

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A trauma research team has developed a profile of commonalities among communities where mass shootings have occurred. It includes a shortage of mental health professionals, a relative lack of socialization opportunities, higher rates of income inequality, and relatively high housing costs, according to findings presented today at the American College of Surgeons Clinical Congress 2018.

The study, led by Stephen F. Markowiak, MD, a general surgery research fellow at the University of Toledo (Ohio), used data from the Federal Bureau of Investigation, the U.S. Census, Centers for Disease Control, National Institutes of Health, and Robert Wood Johnson Foundation to study social factors of communities where 155 [mass shootings](#) in the United States occurred. This study defined mass shootings as those with four or more fatalities, excluding those with a clear motive, such as robbery or gang-related activities. "In general, the communities in which these multiple-shooting events have historically happened are much less healthy compared with national averages," Dr. Markowiak said.

Ironically, study results showed that communities in states with the strictest [gun laws](#) had a 53 percent greater risk of mass shootings. "The counties in the states that have strict gun laws, such as California and New York, actually have a high incidence of these multiple-shooting events, and that holds true even when you control for urbanicity," Dr. Markowiak said. This finding may seem to contradict other studies of gun violence, but Dr. Markowiak explained that apparent discrepancy.

"Our data agrees that stricter gun laws are associated with less overall violent crimes," he added. "It's just that these multiple-shooting events appear to be an exception to that rule."

However, study researchers identified two types of gun laws that stood out as having a correlation with a lower incidence of multiple shootings: mandatory reporting of mental health records to the National Incident Criminal Background Check System and restrictions on open carry of firearms. Dr. Markowiak hesitated to conclude that these laws have a protective effect in preventing mass shootings. "The other laws that we looked at really did not have an effect," he said.

Access to [mental-health professionals](#) is one of the key social determinants of communities at risk of mass shootings. "Looking at our data, the mismatch of mental health providers per capita appears to place more urban communities at risk—greater than the national median of 490 persons per provider," Dr. Markowiak said.

Another key social determinant of at-risk communities was the average number of social interactions per person. "If you look at communities where these events occurred, the average individual had 10.5 to 11 people that they commonly associate with compared with an average of 13 or so close associations in communities where they didn't occur," he said. The study did not determine if this was the result of the rural or urban character of these communities, however.

The researchers also noted that people in at-risk communities engaged in less leisure-time physical activity, and the communities themselves were on average 30.7 percent less rural (p

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