

Mass killings happen randomly, yet rate has remained steady, study finds

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Mass killings may have increasing news coverage, but the events themselves have happened at a steady rate for more than a decade, according to a new study by University of Illinois researchers. Furthermore, some types of mass-killing events seem to occur randomly over time, making prediction difficult and response crucial.

"One of the things we were hoping to do is give people some clarity. If they hear about an event, they can look at that event in proper context," said Douglas M. King, a senior lecturer of industrial and enterprise systems engineering. He conducted the study with Sheldon H. Jacobson, a professor of computer science.

"When you see a mass killing on the news, it captures your attention. You hear about these events more, and start to wonder, does this indicate that mass killings are escalating in frequency? The data shows that even though we're more aware of mass-killing events, the rate that they've happened overall has remained steady," King said.

The researchers used publicly available data about incidents in the United States in which four or more people were killed, totaling 323 events from Jan. 1, 2006 to Oct. 4, 2016 - the latest available data when the study was written. Jacobson and King looked at the data set as a whole and also divided it into groups by method and by type of event - for example, public killings versus family killings.

They found that the events, both collectively and in each subgroup, were

distributed uniformly over time - meaning that the rate at which they happened remained steady throughout the decade, without any significant bunching in a certain season or year.

They also looked at the interval between events in each subgroup, searching for any patterns or correlations, and found that the timing was memoryless.

"Being memoryless means that the amount of time since the last event doesn't have any impact on the amount of time until the next event," King said. "If you're waiting for a bus, the more time you wait, the closer you are to the next bus coming. But with each subgroup of mass-killing events, the time since the last event gives you no insight at all into when the next event will happen. If it has been a longer time since the last event, it does not mean we are 'due' for another."

They researchers suggest that this memoryless property dispels the idea of an event being likely to trigger subsequent similar events, or copycats, as has been speculated.

"The copycat principle doesn't apply to any specific subgroup of mass killing. For example, if there's a shooting, that doesn't mean there's going to be another shooting," Jacobson said. "However, when we look at all the [mass killings](#) together, there's some indication that a mass-killing event could lead to another at some point in the future, but we can't specify the type it will be or when it will happen."

Since the methods and timing of events are random, the researchers suggest that the best prevention may be a robust response system.

"For us to try to predict when or where these events will occur is very problematic. Spending funds on guards at schools or public spaces may not be the best use of scarce public resources," Jacobson said. "What we

need is resiliency in the infrastructure so that when these events do occur, there is a plan for response. Every community should have a plan in place and people who are designated to respond, plus mass education on how to deal with these situations. The data suggests that's the best strategy for minimizing the impact of mass-killing events."

More information: Douglas M. King et al, Random Acts of Violence? Examining Probabilistic Independence of the Temporal Distribution of Mass Killing Events in the United States, *Violence and Victims* (2017). DOI: [10.1891/0886-6708.VV-D-16-00039](https://doi.org/10.1891/0886-6708.VV-D-16-00039)

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