

# Understanding gun violence and mass shootings

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Public mass shootings, once a rare event, now occur with shocking frequency in the United States. According to the Washington Post, four or more people are killed in this horrific manner every 47 days. The most recent mass shootings, in Dayton, Ohio, and El Paso, Texas, occurred less than a day apart and resulted in the loss of 31 lives.

With each fresh assault, politicians and the public have become more firmly entrenched in their beliefs about the root causes of [mass shootings](#) and about possible solutions, from more restrictive gun control laws to better [mental health care](#).

Researchers across Columbia University's campuses have put these theories to the test in an effort to identify effective strategies for preventing mass shootings and other forms of gun violence.

## Mental Illness

Mental illness has long been suspected as a primary cause of gun violence and mass shootings in particular. But only 3% to 5% of violent events are attributable to [mental illness](#), writes Paul

Appelbaum, MD, director of the Division of Law, Ethics, and Psychiatry at Columbia University Irving Medical Center, in an opinion article in *JAMA Psychiatry*. "Much of the increased risk [of violence] in people with mental disorders is attributable to other variables rather than to the disorders themselves. Substance abuse, for example, accounts for a large proportion of the incremental risk."

Further, Appelbaum writes, "compilations of incidents of mass shootings suggest that people with severe mental disorders may be overrepresented among the perpetrators, but given the possibility of bias in the nonsystematic collection of such data, firm conclusions are impossible at this point."

## Video Games

With little funding to study gun violence, "we tend to fall back on conclusions unsupported by evidence," says Sonali Rajan, EdD, assistant professor of health education at Columbia University Teachers College in an interview published on the school's website.

In a study published in *PLOS ONE*, Rajan and colleagues from NYU Langone found no association between video games and other types of screen time and gun ownership among teens. The researchers analyzed data from the CDC's Youth Risk Behavior Surveillance System—which surveyed tens of thousands of teens about 55 different behaviors over a period of 10 years—to identify factors associated with carrying a firearm. "Among the 5% to 10% of American teens who report regularly carrying a firearm, there is a much stronger association with substance use, engagement in physical fighting, and exposure to sexual violence than with any poor mental health indicator," explains Rajan.

## Gun Laws

States with more permissive gun laws and greater ownership of firearms had higher rates of mass shootings than states with more restrictions on gun ownership, according to a recent study by Columbia researchers in the *British Medical Journal*. "Our analyses reveal that U.S. gun laws have become more permissive in past decades, and the divide between permissive states and those with more stringent laws seems to be widening in concert with the growing tragedy of mass shootings in the U.S.," says senior author Charles Branas, Ph.D., chair of epidemiology at Columbia University Mailman School of Public Health, in an article on the school's website.

"What happened in Las Vegas saddens me deeply," Branas says in a previous interview for the Mailman School website. "But this is only the tip of a much larger gun-violence iceberg in the U.S. On the same day, hundreds more people across the U.S. were shot, adding up to somewhere around 100,000 shootings a year.

"We need to think beyond simply guns and people, and start thinking about the environment that is promoting these shootings in the first place," writes Branas, whose research also has focused on transforming abandoned housing and other signs of urban and rural blight to improve community health and safety.

In other countries, the implementation of laws restricting the purchase of and access to guns in other countries has also been associated with reductions in gun-related deaths, according to a study from researchers at Columbia University Mailman School of Public Health. "While the research did not conclusively prove that restrictions, or relaxation of laws, reduce gun deaths, the results indicate that gun violence tended to decline after countries passed new restrictions on gun purchasing and ownership," says co-author Sandro Galea, Ph.D., in an interview for the school's website.

## Aftereffects

Recent suicides among survivors of the mass shootings at Sandy Hook Elementary School and Parkland High School show that the effects of such

violent events are long-lasting and entrenched.

"The public may be affected [by mass shootings] even if they were not in immediate proximity, because the media reifies the effects of a mass violent incident," says Jeffrey Lieberman, MD, chair of the Department of Psychiatry at Columbia University Vagelos College of Physicians and Surgeons, in a recent video interview for Medscape.

For survivors of [violent events](#), "reminders such as anniversaries can prolong complicated grief or even reactive grief and trauma," writes Kathleen Pike, Ph.D., director of the Global Mental Health WHO Collaborating Centre at Columbia University, in an article published on the center's website.

"Community supports matter not only in the immediate aftermath of traumatic events but also for individuals who continue to suffer over time."

**More information:** Kelly V. Ruggles et al. Gun Possession among American Youth: A Discovery-Based Approach to Understand Gun Violence, *PLoS ONE* (2014). DOI: [10.1371/journal.pone.0111893](https://doi.org/10.1371/journal.pone.0111893)

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