

POLICY BRIEF

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# Can Mass Shootings be Stopped?

*To Address the Problem, We  
Must Better Understand the  
Phenomenon*

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*July 2021*

**Jaclyn Schildkraut**

**Rockefeller**  
SUNY  
Institute of Government

Regional  
Gun Violence  
Research  
Consortium

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*Front night view of the King Soopers supermarket at Table Mesa Drive, Boulder, Colorado, where a mass shooting took place in 2021!*



*A vigil for victims of the 2021 San Jose VTA railyard shooting.<sup>2</sup>*

# After the COVID-19 Pandemic: An Updated Look at Public Mass Shootings in America

The first five months of 2021 saw high-profile public mass shootings in cities across the United States of America, like Atlanta, Georgia (March 16, 8 dead), Boulder, Colorado (March 22, 10 dead), Indianapolis, Indiana (April 15, 8 dead), and San Jose, California (May 26, 9 dead). Following a year where such events rarely made headlines as the nation found itself in the throes of the coronavirus pandemic, these incidents revived the public discourse about mass shootings in America, as well as how to prevent and respond to such tragedies. This dialogue raised an important question: As society returns to normal after the COVID-19 pandemic, what does the future of mass shootings look like?

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To answer this, it is important to understand the trends associated with the phenomenon of mass shootings. The first issuance of this policy brief in 2018 examined 51 years (1966–2016) of mass shootings data based on a comprehensive database from researchers Jaclyn Schildkraut and H. Jaymi Elsass.<sup>3</sup> As described below, the researchers developed their own definition that became the foundation of this analysis given deficiencies with existing classifications and data sources.

This updated brief provides analyses including an additional four new years of data since the original 2018 policy brief to identify changes in trends and broader considerations for policymakers, particularly given the COVID-19 pandemic's impact and lessons learned from specific shootings within this period. Specifically, this brief presents and analyzes a total of 55 years of mass shooting data from 1966 to 2020, including frequency, injury and fatality, location type, weapon usage, and perpetrator demographics. The appendix contains information on only the most recent four years of data from 2017 to 2020.

Although all episodes of firearm violence are cause for concern, public mass shootings differ from other incidents in key ways. For instance, unlike family murders and a considerable portion of gang violence that may be targeted, public mass shootings are random in nature. They also typically involve considerable planning, rather than other incidents that are more spontaneous in nature, which can provide important opportunities to deescalate the situation before it culminates in the mass shooting.<sup>4</sup> Similarly, the location selection—large, often open public spaces—presents significant challenges for both preventative security measures and responses from law enforcement to active shooter incidents. As such, better understanding this phenomenon in its unique context is necessary to distinguish strategies needed to prevent and respond to public mass shootings. Promoting a deeper understanding of mass shootings can also provide policymakers with important insights upon which to craft more effective prevention and response efforts.

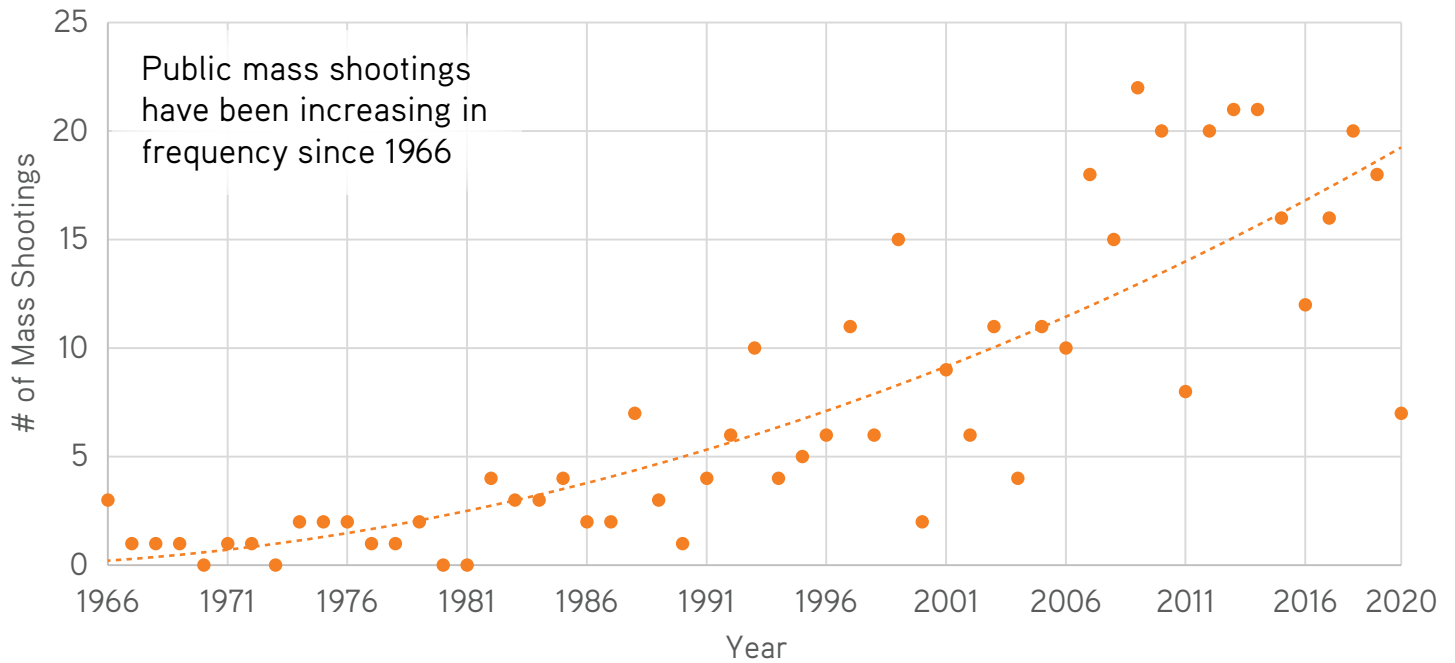
# MASS SHOOTING FACTSHEET

1966 – 2020

**402**  
MASS  
SHOOTINGS

**1,449**  
DEATHS

**3,590**  
VICTIMS\*



## PERPETRATOR DEMOGRAPHICS

**95.7%**  
MALE

**33.2**  
AVERAGE AGE

**54.8%**  
WHITE

## MASS SHOOTING LOCATION & WEAPONS

**29.4%**  
WORKPLACE

**25.1%**  
SCHOOL

More than half of mass shootings took place in the perpetrator's workplace or school.

**74.6%**  
USED HANDGUNS

\* Both injured and killed.





*The Columbine High School memorial, located in Clement Park in Littleton, Colorado.<sup>5</sup>*

The mass shooting at Columbine High School in Littleton, Colorado, happened over two decades ago, yet it remains etched in the national consciousness. Columbine spurred a national debate—from personal safety to the security of schools, workplaces, and other locations and to broader considerations of guns and mental illness. To this day, communities are still struggling to find solutions to the complex and multifaceted nature of mass shootings.

Exacerbating this already complex issue is the prevalence of social media and never-ending wall-to-wall media coverage. Mass shootings, and those that are particularly lethal, are amplified by the news cycle, making them appear more commonplace when they are, in fact, statistically rare. Despite their episodic and highly sensational nature, however, not all mass shootings garner the same attention by the media.<sup>6</sup> Those shootings that are the most lethal may receive more coverage, while those events that are perceived as more “routine” by the media may not even be covered at all.

As a result of the intense and often unbalanced media coverage of mass shootings, members of the public may hold disproportional attitudes about the events themselves. Certain shootings, for example, may be perceived as indicators of a broader social problem, while others are considered to be isolated events.<sup>7</sup> Still, the collective phenomenon of mass shootings has been found to produce a host of outcomes for the public, including fear of crime, a potential moral panic, and the general belief that these events are more prevalent than their actual occurrence.<sup>8</sup>

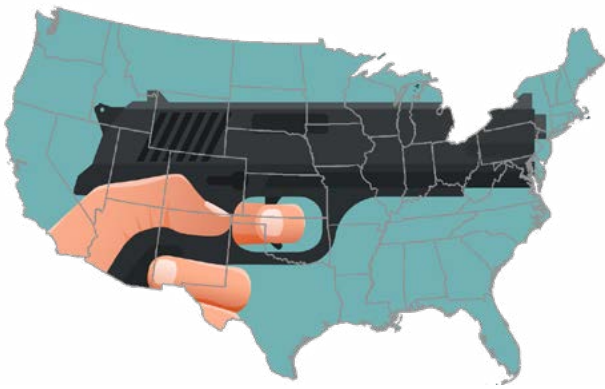
## ABOUT THE AUTHOR

**Jaclyn Schildkraut** is an associate professor of public justice at SUNY Oswego and a national expert on mass shootings and is a member of the Regional Gun Violence Research Consortium.

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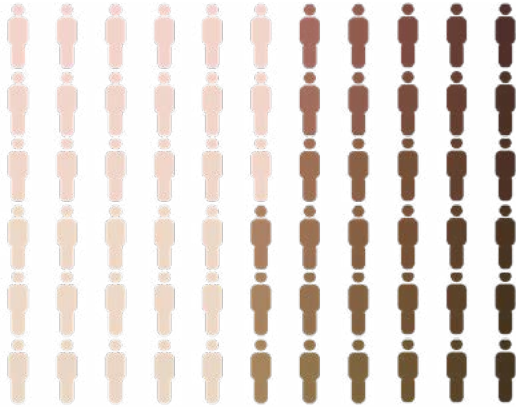
This report is a revised version of *Can Mass Shootings Be Stopped*, published in May 2018, <https://rockinst.org/issue-area/can-mass-shootings-be-stopped/>

# Mass Shooting Myths



**MYTH** Mass shootings only happen in the United States.

**REALITY** Mass shootings occur in countries worldwide, including on six of the seven continents.



**MYTH** Mass shootings are only perpetrated by white men.

**REALITY** Though mass shooters are most commonly (but not exclusively) male, only about half are white.



**MYTH** Mass shootings are always carried out with assault rifles.

**REALITY** Handguns are nearly three times more likely to be used in mass shootings than rifles.



**MYTH** Columbine was the first (or one of the first) mass shooting in the United States.

**REALITY** Mass shootings have been traced back to the 1800s. Columbine, however, was a watershed moment that redefined how Americans think about the phenomenon of mass shootings.

Like the public, policymakers also have struggled with how to respond to mass shootings. Most policies center on either further restricting or expanding rights related to gun ownership and carrying, with a lesser emphasis on mental health protocols, regulating violent media, or policies related to security practices. More often than not, in the immediate aftermath of a mass shooting, a flurry of bills are introduced, but few, if any, are ever enacted into legislation.<sup>9</sup> Further compounding the issue is that the new laws that are passed, or even those that have been on the books for decades, often are not enforced, leading them to be ineffective at preventing the next mass shooting.<sup>10</sup>

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## Problems Defining Mass Shootings

A central challenge in developing public policy solutions to mass shootings in America is the absence of a precise and generally accepted definition. Without this, the result is a distorted understanding of the actual context of the problem of mass and school shootings. Put plainly, we cannot solve a problem we do not fully understand.

There is wide variation on how mass shootings are defined. Various government organizations (e.g., the Centers for Disease Control and Prevention, US Department of Education), advocacy organizations (e.g., Everytown for Gun Safety), and other entities (e.g., GunViolenceArchive.org’s Mass Shootings Tracker) offer data that are based on their own descriptions that vary based on the number of victims (either killed or total shot), location, and the like. As a result, these definitions—several of which are discussed below—are inconsistent, overly broad, and ultimately lead to inflated statistics.

After the February 14, 2018 shooting at Marjory Stoneman Douglas High School in Parkland, Florida, for example, headlines around the country reported it to be the seventeenth school shooting of the year.<sup>11</sup> Many news outlets relied on data from a prominent gun control organization, Everytown for Gun Safety. Everytown defines school shootings as “any time a firearm discharges a live round inside or into a school building or on or onto a school campus or grounds, as documented by the press and, when necessary, confirmed through further inquiries with law enforcement or school officials.”<sup>12</sup> Included in their compiled data based on this definition are attempted or completed suicides, accidental discharges, and purposeful discharges in which no one is injured or killed. When the 17 events reported by Everytown for 2018 (through the Marjory Stoneman Douglas shooting) are separated based on their context, the number of school shootings in the more “traditional” sense (using Columbine as a template) is reduced to three. This, of course, creates issues developing appropriate policies and responses. Since these situations all required qualitatively different responses from school administrators, law enforcement officials, and other vested stakeholders, treating them all the same for the purpose of providing more compelling statistics is problematic.

More broadly, mass shootings also suffer from the same definitional issues. Often, whether an event qualifies as a mass shooting is contingent upon how many people are killed without consideration of the context surrounding the attack. Like school shootings, however, there are situational differences between multiple victim fatality situations such as familicides (the killing of one's family), gang shootings, and even terrorism events in terms of prevention and response.

Further, events may not qualify as mass shootings when they do not meet a requisite number of fatalities (typically four, depending on the definition), despite that the intent and opportunity for the perpetrator was present. For example, a 2015 Congressional Research Service report defines a mass shooting as “a multiple homicide incident in which four or more victims are murdered with firearms, within one event, and in one or more locations in close proximity.”<sup>13</sup> Such a definition, however, can be limited in that it misses events—thereby creating false negatives in the accompanying data.<sup>14</sup> The May 21, 1998, shooting at Thurston High School in Springfield, Oregon, highlights this issue. The 15-year-old perpetrator killed two students and wounded 25 others. Despite 27 total victims, this case would have been excluded from this particular study for not having met the criteria for number of fatalities. Similarly, the 22-year-old perpetrator in the December 11, 2012, shooting at the Clackamas Town Center in Clackamas, Oregon, killed two and wounded a third before his gun jammed. Despite that there were between 8,000 and 10,000 potential victims in the mall at the time of the event, this shooting, too, would have been excluded as a false negative.

## Updated Analysis of Mass Shootings

In one of the most comprehensive studies of mass shootings in the United States to date, researchers Jaclyn Schildkraut and H. Jaymi Elsass evaluated existing definitions of mass shootings from a number of sources, identifying the benefits and deficiencies of each.<sup>15</sup> In doing so, they crafted their own definition aimed at overcoming the limitations of these previous descriptors, which serves as the basis for this report:

A mass shooting is an incident of targeted violence carried out by one or more shooters at one or more public or populated locations. Multiple victims (both injuries and fatalities) are associated with the attack, and both the victims and location(s) are chosen either at random or for their symbolic value. The event occurs within a single 24-hour period, though most attacks typically last only a few minutes. The motivation of the shooting must not correlate with gang violence or targeted militant or terroristic activity.<sup>16</sup>

In addition to definitional issues of school and mass shootings, the absence of a single national database of mass shooting events makes it difficult to properly understand and address the problem. Using the above criteria, Schildkraut and Elsass created a comprehensive dataset of mass shootings. Identifying potential events through media accounts, existing databases, and web searches, they cross-referenced each shooting through at least three sources to ensure that it aligned with the definition.

Mass shootings over the last four years account for 21.5 percent of all fatalities and 29.8 percent of all victims since 1966.

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What they found was that over a 55 year period stretching between 1966 and 2020, a total of 402 mass shootings occurred in the United States, including 63 between 2017 and 2020.<sup>17</sup> Collectively, these events resulted in 1,449 deaths and a total of 3,590 victims (both injured and killed). Notably, mass shootings over the last four years account for 21.5 percent of all fatalities and 29.8 percent of all victims since 1966. Across mass shooting events, the number of deaths ranged from zero to 58, with the total number of victims (both injuries and fatalities) varying between two and 471.<sup>18</sup> While the number of victims resulting from some events is high, the majority of shootings have far fewer victims, resulting in median number of deaths and total victims of two and five, respectively. However, when examining the most recent four years (2017-20), the median number of deaths is slightly higher with three per incident, but the median number of total victims remains the same.

## Most Lethal Mass Shootings

Notably, of the 25 most lethal mass shootings ([Table 1](#)), eight of these occurred between 2017 and 2020. These events included the 2017 attack at the Route 91 Harvest Festival concert in Las Vegas, Nevada, which remains the most lethal public mass shooting to date (58 killed), as well as those events in Sutherland Springs, Texas (2017, 26 killed), Parkland, Florida (2018, 17 killed), and El Paso, Texas (2019, 22 killed).

TABLE 1. 25 Most Lethal Mass Shootings, 1966-2020

| Rank | Date               | Location               | Killed | Injured |
|------|--------------------|------------------------|--------|---------|
| 1    | October 1, 2017    | Las Vegas, NV          | 58     | 413     |
| 2    | June 12, 2016      | Orlando, FL            | 49     | 53      |
| 3    | April 16, 2007     | Blacksburg, VA         | 32     | 23      |
| 4    | December 14, 2012  | Newtown, CT            | 26     | 1       |
|      | November 5, 2017   | Sutherland Springs, TX | 26     | 20      |
| 6    | October 16, 1991   | Killeen, TX            | 23     | 20      |
| 7    | August 3, 2019     | El Paso, TX            | 22     | 26      |
| 8    | July 18, 1984      | San Ysidro, CA         | 21     | 19      |
| 9    | February 14, 2018  | Parkland, FL           | 17     | 17      |
| 10   | August 1, 1966     | Austin, TX             | 16     | 32      |
| 11   | August 20, 1986    | Edmond, OK             | 14     | 7       |
|      | December 2, 2015   | San Bernardino, CA     | 14     | 19      |
| 13   | September 25, 1982 | Wilkes-Barre, PA       | 13     | 1       |
|      | April 20, 1999     | Littleton, CO          | 13     | 24      |
|      | April 3, 2009      | Binghamton, NY         | 13     | 4       |
|      | November 5, 2009   | Fort Hood, TX          | 13     | 32      |
| 17   | July 29, 2009      | Atlanta, GA            | 12     | 13      |
|      | July 20, 2012      | Aurora, CO             | 12     | 58      |
|      | September 16, 2013 | Washington, DC         | 12     | 8       |
|      | November 7, 2018   | Thousand Oaks, CA      | 12     | 22      |
|      | May 31, 2019       | Virginia Beach, VA     | 12     | 4       |
| 22   | October 27, 2018   | Pittsburgh, PA         | 11     | 7       |
| 23   | March 10, 2009     | Samson/Geneva, AL      | 10     | 6       |
|      | October 2, 2015    | Roseburg, OR           | 10     | 9       |
|      | May 18, 2018       | Santa Fe, TX           | 10     | 13      |

## Variation in Location Selection

Mass shootings occur in a variety of locations, including (but not limited to), schools; workplaces (based on the perpetrator’s relationship to the location); places of worship (e.g., churches, temples); restaurants; nightlife establishments (e.g., bars, clubs); malls; movie theaters; airports; hospitals; and government buildings. In some instances, they may occur in residential areas or may span multiple locations, with shooters adopting a spree-like format by going mobile.<sup>19</sup> Across the 55 year period (1966-2020) and within the most recent four years, workplaces remain the most likely places for mass shootings to occur, followed by schools ([Table 2](#)). Together, these locations accounted for nearly 55 percent of events occurring in the last 55 years and nearly 40 percent in the most recent four years. This finding is not entirely unexpected as the shooters have relative ease of access to their victims in their roles as current or former employees or students, as well as familiarity with the location. High-profile shootings also occurred at the Congressional baseball game in Alexandria, Virginia (June 14, 2017) and at the headquarters of YouTube (April 3, 2018).

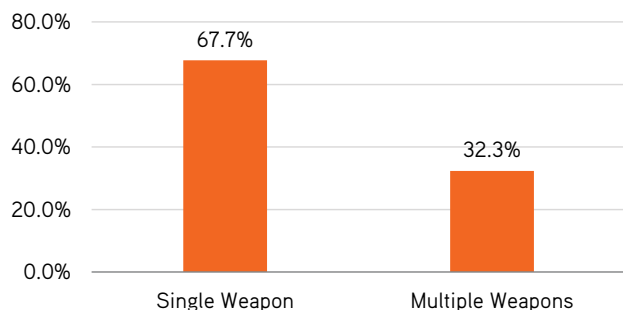
**TABLE 2. Mass Shooting by Location Type, 1966-2020**

| LOCATION TYPE          | EVENTS | % OF TOTAL |
|------------------------|--------|------------|
| Workplace              | 118    | 29.4%      |
| School                 | 101    | 25.1%      |
| Other                  | 59     | 14.7%      |
| Multiple Locations     | 37     | 9.2%       |
| Restaurant/Nightlife   | 29     | 7.2%       |
| Shopping/Entertainment | 23     | 5.7%       |
| Government/Military    | 19     | 4.7%       |
| Place of Worship       | 16     | 4.0%       |

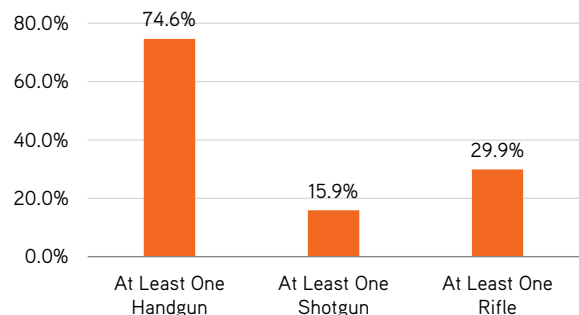
## Weapons Selections Across Mass Shootings

From 1966 to 2020, the majority of mass shooting events were carried out with a single firearm (67.7 percent), although multiple weapons were used in nearly one-third of events ([Figure 1](#)). Handguns were the most commonly used weapon, with at least one being used in 74.6 percent of events ([Figure 2](#)). In fact, handguns are the preferred weapons of mass shooters and are used more than two times as often as rifles and nearly five times more frequently than shotguns. When only a single weapon was involved, handguns were significantly more likely to be used than any other type of gun (68.4 percent of events).<sup>20</sup> In 29.9 percent of events, at least one rifle, which may include assault-style weapons, was used.

**FIGURE 1. Weapons Usage in Mass Shootings, 1966-2020**



**FIGURE 2. Types of Weapons Used in Mass Shootings, 1966-2020**



## Demographics of the Perpetrators

Across the 402 mass shootings identified between 1966 and 2020, there were 415 perpetrators. Just about 96 percent of the shooters were male, most of whom acted on their own (Figure 3). Conversely, there were just 18 female offenders, 14 of whom acted alone. In just 10 shootings (2.5 percent), multiple shooters were present. Mass shootings with co-offenders most often involved two or more males.

The distribution of age of the 415 shooters is presented in Figure 4. The average age of a mass shooter was 33.2 years. The youngest shooter was 11 years of age, while the oldest was 88. Nearly half (46 percent) of the shooters were under the age of 30 at the time of their crimes, with nearly 15 percent of those perpetrators being juveniles (those individuals under the age of 18). In the most recent four years, shooters were typically older with more perpetrators between the ages of 20 to 39 (59.2 percent) than in the 50 years prior (43.2 percent).

Race and/or ethnicity was identifiable for 365 (88 percent) of the shooters, the distribution of which is illustrated in Figure 5. Despite common misperceptions that all mass shooters are white, the findings indicate that while a majority are, this proportion is just over half of the perpetrators (55 percent). More than one in four shooters is Black and one in ten is of Hispanic descent. Fewer than 5 percent of mass shooters were identified as Asian, Native American, or of other racial or ethnic descent. Notably, the majority of perpetrators who were categorized as “other” races or ethnicities (3.6 percent) were reportedly of Middle Eastern descent.<sup>21</sup>

FIGURE 3. Sex of Mass Shooters by Event Circumstance, 1966-2020

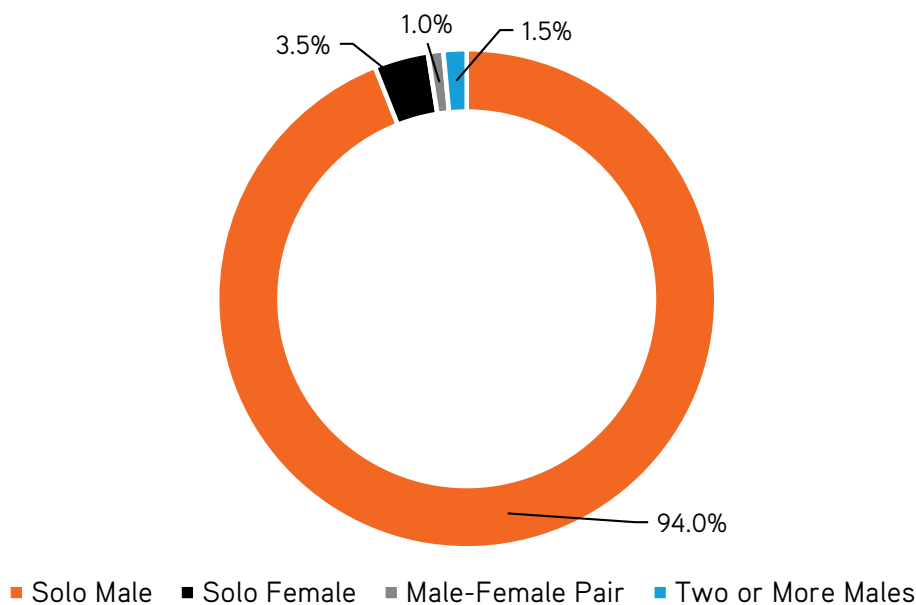


FIGURE 4. Distribution of Ages by Mass Shooters, 1966-2020

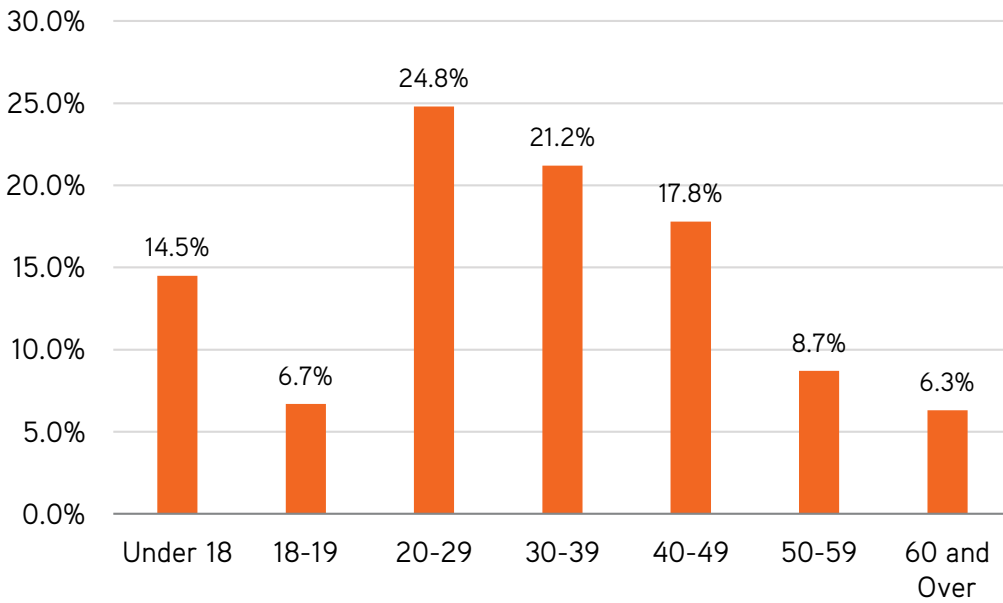
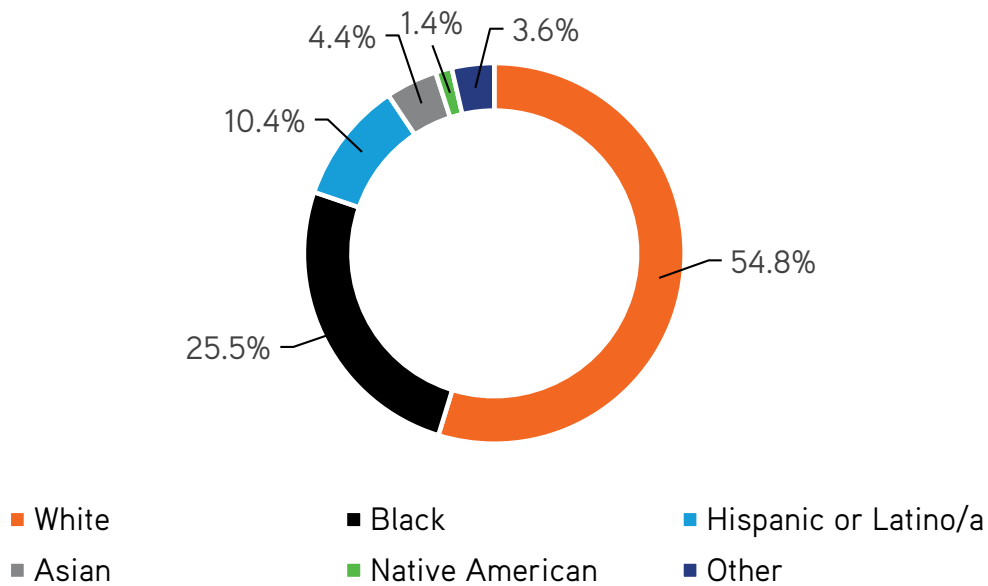


FIGURE 5. Race/Ethnicity of Mass Shooters, 1966-2020



## Mass Shootings Trends Over Time

Over the 55 year period examined (1966-2020), mass shootings have been steadily increasing in frequency each year. On average, fewer than 20 public mass shootings occur annually, and the last four years of the analysis largely followed the same trajectory. As indicated in [Figure 6](#), there were 16 incidents in 2017, 20 in 2018, and 18 in 2019.

Notably, however, there were just seven public mass shootings in 2020, which was the first year since 2011 with a single digit number of attacks. Given that much of society, including education and employment, shifted online with the declaration of the COVID-19 pandemic as a national emergency on March 13, 2020 and corresponding lockdowns, this statistic should be interpreted cautiously as the opportunity for such attacks to take place was significantly reduced with considerably fewer people out in public. As such, data on future years, particularly after the resumption of regular activities including school and work outside of the home, will be needed to assess whether the steady increase in the number of annual events continues.

While several of the earlier years experienced no mass shootings (based on the definition used here), six years exceeded 20 events, all of which occurred within a 10-year period (2009-18). The most mass shootings in one year (22) took place in 2009.

Finally, while the risk of becoming the victim of a mass shooting is extremely low, there has been a similar increase in this rate over time ([Figure 7](#)). Using data from the US Census to account for changes in population over time, the average incidence rate for total victimization (both injuries and fatalities) due to mass shootings between 2006 and 2016 was nearly 0.04 per 100,000 people in the population, almost seven times greater than the incidence rate between 1966 and 1975.

Over the most recent four years (2017-20), the average annual incidence rate for victimization (fatalities plus injuries) was 0.08 per 100,000 individuals in the population. Importantly, however, this figure is higher—more than twice of any of the previous five decades—due to the disproportionately high number of injuries in the Las Vegas shooting. However, even when omitted, the average annual rate is 0.05 per 100,000, which is an increase consistent with the trend identified in prior decades.

Since 1986, individuals victimized in a mass shooting were more likely to be injured rather than killed. This is due, at least in part, to improvements in medical technology, advances in active shooter training and related protocols, and faster response times by law enforcement and other first responders.



FIGURE 6. Distribution of Mass Shooting by Year, 1966-2020

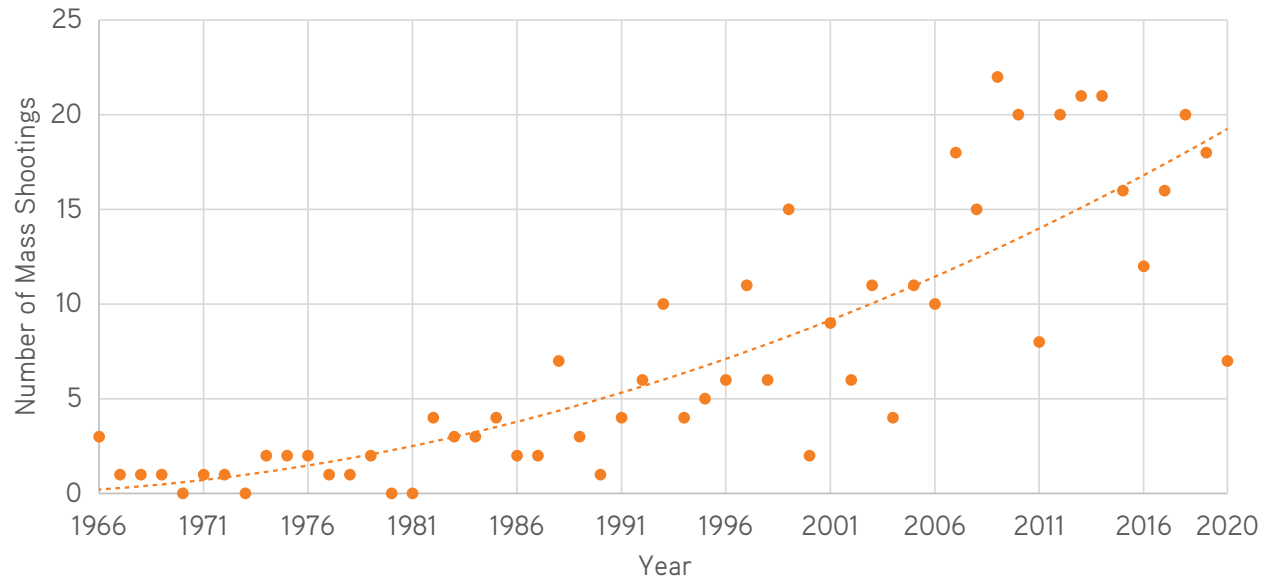
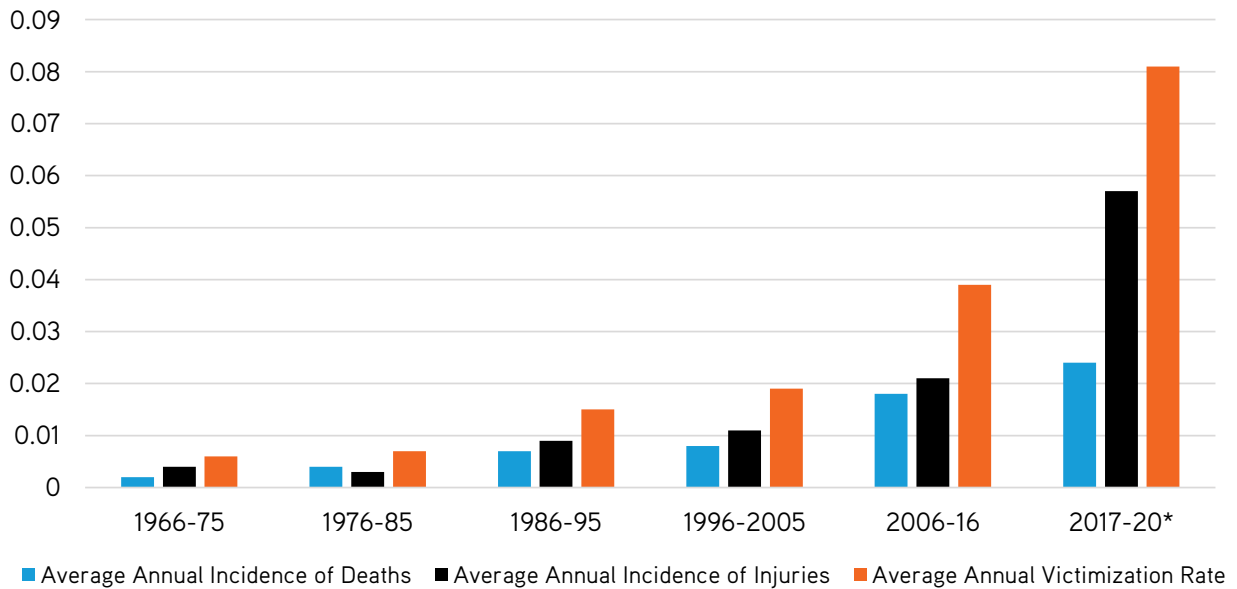


FIGURE 7. Average Annual Incidence Rates of Victimization Due to Mass Shootings, 1966-2020



\* 2017-20 is a four-year interval only, which contains the outlier events of the COVID-19 pandemic and the Las Vegas shooting.

## A Roadmap for Policymakers

As society returns to a sense of normalcy following the COVID-19 pandemic, it is reasonable to expect that mass shootings will resume with more regular frequency based on the patterns established in years prior. This is particularly true for workplaces and schools, which continue to be the most common locations for public mass shootings to occur, though the distribution of locations suggests that no place nor community is immune from this form of violence. Handguns continue to be the preferred weapon of choice among mass shooters, though the usage of assault-style rifles did increase slightly in this latest analysis of data between 2017 and 2020. Previous research and the cases within this analysis have shown that these types of firearms are associated with more lethal mass shooting events.<sup>22</sup>

Knee-jerk reactions rooted in emotion will not solve the problem. The evidence produced to date shows that the problem requires solutions that are versatile and grounded in evidence to be effective. Although mass shootings occur considerably less frequently than portrayed by the media, the findings are that they have increased over time. Therefore, it is incumbent to find evidence-based solutions to this growing problem. Given differences within and between events (e.g., demographics, weapon, and location selection, etc.), a one-size-fits-all approach may not work; tailored solutions may work better depending on the state and the community. Government efforts at state and federal levels should consider evidence-based policies that address the various usage of firearms in mass shootings. Importantly, policymakers should continue to work to close the gaps and loopholes that impede prevention efforts, and future works by the Regional Gun Violence Research Consortium will continue to address these issues.

## Appendix. Analysis of Public Mass Shootings, 2017-20

The following analyses highlight trends in public mass shootings for the latest four years of the dataset (2017-20), during which time 63 events took place. These findings then are compared against our previous report analyzing public mass shootings between 1966 and 2016.

### Location Selection

Public mass shootings were most likely to be perpetrated at workplaces, followed by schools and across multiple locations (see [Table A1](#)).

*Compared to Previous Data Period:*

The proportion of shootings occurring at schools over the most recent four years decreased by 16.5 percent, while shootings across multiple locations increased slightly. The proportion of shootings across all other location types remained stable.

*Table A1. Mass Shootings by Location Type*

| Location Type          | Events | Percentage |
|------------------------|--------|------------|
| Workplace              | 18     | 28.6%      |
| School                 | 7      | 11.1%      |
| Multiple Locations     | 7      | 11.1%      |
| Restaurant/Nightlife   | 6      | 9.5%       |
| Shopping/Entertainment | 4      | 6.3%       |
| Place of Worship       | 4      | 6.3%       |
| Government/Military    | 3      | 4.8%       |
| Other                  | 14     | 22.2%      |

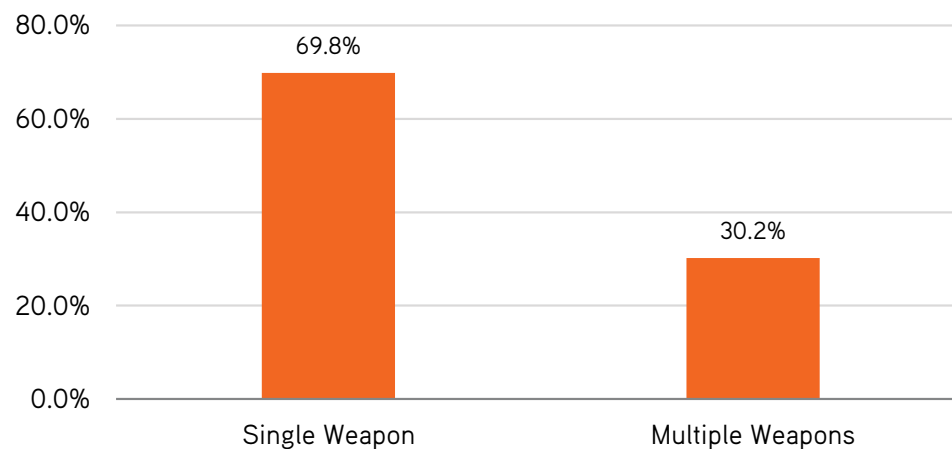
### Weapons Selection

The majority of public mass shootings occurring between 2017 and 2020 involved the use of a single weapon ([Figure A1](#)), though multiple weapons were used, on average, in three out of every 10 attacks.

*Compared to Previous Data Period*

The distribution of weapons use (single vs. multiple) was consistent between the most recent years analyzed and the 51 years prior, though there were slight differences in each. Specifically, single weapon use was higher and multiple firearm use lower in the most recent years assessed.

*FIGURE A1. Weapons Usage in Mass Shootings, 2017-20*

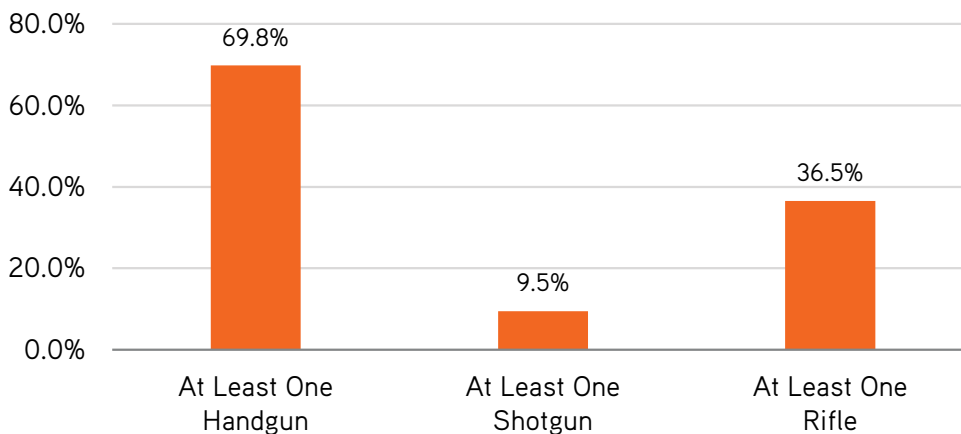


Handguns remained the preferred weapon of choice among public mass shooters, used in nearly seven out of every 10 attacks, on average (Figure A2). More than one-third of shootings employed at least one rifle, all of which utilized semiautomatic firing mechanisms that increase the speed of shooting by expediting cartridge release and reload.<sup>23</sup> Just a fraction of cases involved a shotgun.

*Compared to Previous Data Period:*

Usage of handguns and shotguns by public mass shooters decreased nearly 5 percent between the two analyses, while the usage of rifles increased by nearly 7 percent. Additionally, while all rifles utilized a semiautomatic firing mechanism in the most recent four years, just 69 percent did in the previous review, suggesting a shift in preference toward semiautomatic or “assault-style” rifles, which also have been found to correlate with more lethal attacks.

FIGURE A2. Types of Weapons Used in Mass Shootings, 2017-20



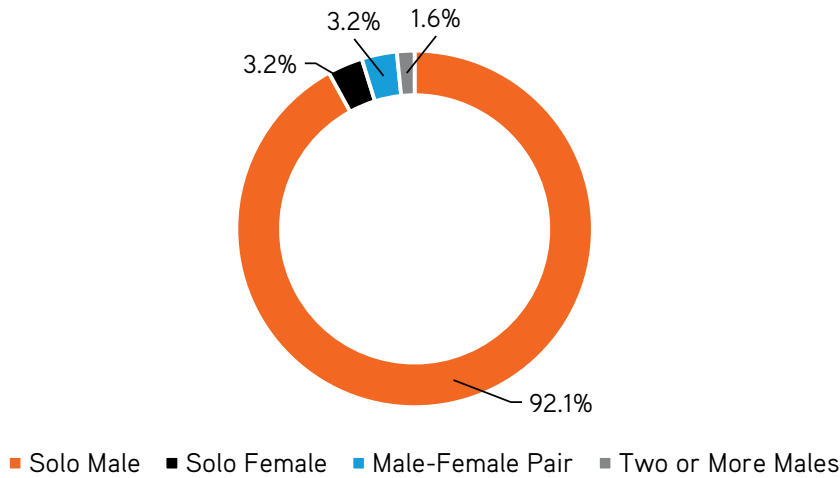
## The Perpetrators

There were 66 perpetrators across the 63 events identified between 2017 and 2020. The majority of perpetrators (94 percent) were males and most committed solo acts. Of the four female perpetrators, half acted alone. In three of the cases, multiple offenders were present. One case (the 2019 shooting at the STEM School in Highlands Ranch, CO) was committed by two males,<sup>24</sup> while the other two cases were perpetrated by a male-female pair.

*Compared to Previous Data Period*

Public mass shootings continue to be a male-dominated phenomenon with nearly identical proportions in each analysis (Figure A3). Compared to our previous analysis, however, there was a larger share of cases with multiple offenders (4.8 percent vs. 2.1 percent). Between 1966 and 2016, these incidents more commonly involved two or more males. In the most recent four years analyzed, however, male-female teams were more common in co-offending situations (66.7 percent).

FIGURE A3. Sex of Mass Shooters by Event Circumstances, 2017-20

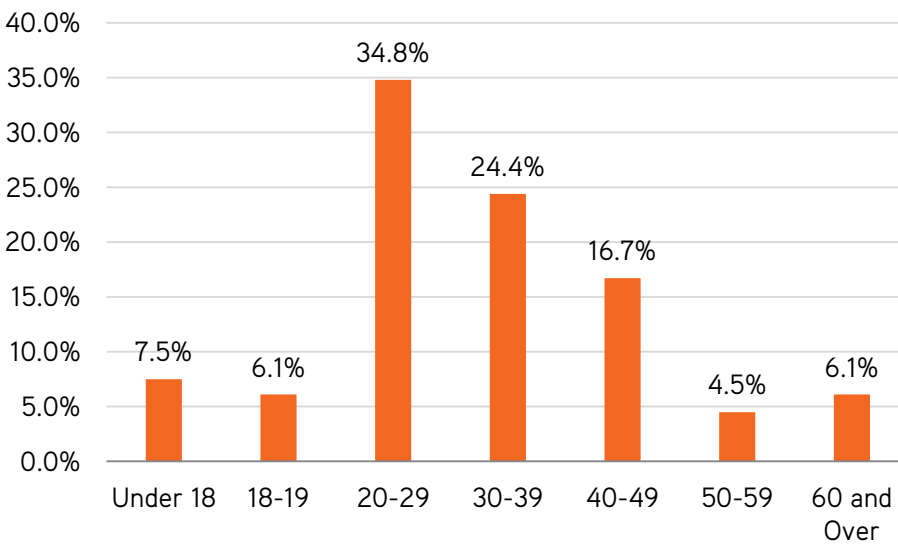


Between 2017 and 2020, the average age of public mass shooters was 33.0 years. The youngest perpetrator in the analysis period was 16 year of age, while the oldest was 66. As depicted in [Figure A4](#), approximately 8 percent of perpetrators were classified as juveniles at the time of their attack, with just over 48 percent of offenders being under the age of 30.

*Compared to Previous Data Period:*

The average age of public mass shooters has remained stable over the last 55 years of analysis. In the most recent period, there were half as many juvenile shooters than in the 51 years prior. Additionally, while there were fewer perpetrators aged 50 and older in the four-year period (10.6 percent compared to 15.6 percent between 1966 and 2016), the share of perpetrators who were between the ages of 20 and 39 years old increased by 15 percentage points.

FIGURE A4. Distribution of Mass Shooters, 2017-20



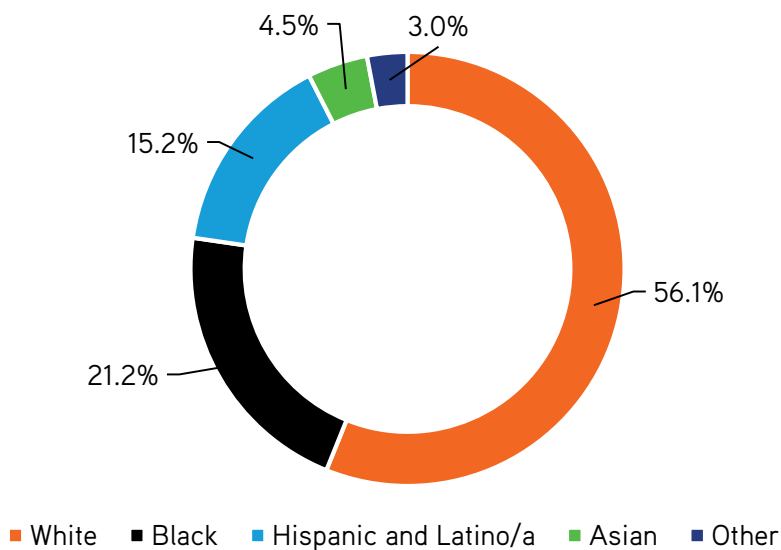


Race/ethnicity was identifiable for all 66 public mass shooters over the last four years of analysis. The distribution of this attribute is presented in [Figure A5](#). Just over half of the perpetrators (56 percent) were white and approximately one out of every five were classified as Black. An additional 15 percent of perpetrators were of Hispanic descent, and fewer than 5 percent were classified as Asian or other races/ethnicities. In this particular analysis, both perpetrators who fell into the “other” category were of Middle Eastern descent. There were no perpetrators identifying as Native American between 2017 and 2020.

*Compared to Previous Data Period:*

The finding that a majority, though not a disproportionate one, of public mass shooters are white is consistent with our previous analysis (54 percent). In the more recent four years, however, there were fewer public mass shooters who were Black and more identifying as Hispanic than in the previous 51 years (27 percent and 9 percent, respectively).

**FIGURE A5. Race/Ethnicity of Mass Shooters, 2017-20**



The Las Vegas Sign on The Strip, as seen on October 9, 2017, covered in flowers in the wake of the 2017 Las Vegas Strip shooting.<sup>25</sup>



# ENDNOTES

- 1 "King Soopers" by Mapillary user dgrinbergs is licensed under CC BY-SA 4.0, [https://commons.wikimedia.org/wiki/File:King\\_Soopers\\_\(Table\\_Mesa\\_Dr,\\_Boulder,\\_CO\).jpg](https://commons.wikimedia.org/wiki/File:King_Soopers_(Table_Mesa_Dr,_Boulder,_CO).jpg).
- 2 "Vigil for victims of 2021 San Jose VTA railyard shooting 31" by Legoktm is lincensed under CC BY-SA 4.0 [https://commons.wikimedia.org/wiki/File:Vigil\\_for\\_victims\\_of\\_2021\\_San\\_Jose\\_VTA\\_railyard\\_shooting\\_31.jpg](https://commons.wikimedia.org/wiki/File:Vigil_for_victims_of_2021_San_Jose_VTA_railyard_shooting_31.jpg).
- 3 Jaclyn Schildkraut and H. Jaymi Elsass, *Mass Shootings: Media, Myths, and Realities* (Santa Barbara, CA: Praeger, 2016).
- 4 Frederick S. Calhoun and Stephen W. Weston, *Contemporary Threat Management: A Practical Guide for Identifying, Assessing, and Managing Individuals of Violent Intent* (San Diego, CA: Specialized Training Services, 2003).
- 5 "Columbine Memorial" by Seraphimblade is licensed under CC BY-SA 4.0, [https://commons.wikimedia.org/wiki/File:Columbine\\_memorial.png](https://commons.wikimedia.org/wiki/File:Columbine_memorial.png).
- 6 Jaclyn Schildkraut, H. Jaymi Elsass, and Kimberly Meredith, "Mass shootings and the media: why all events are not created equal," *Journal of Crime and Justice* 41, 3 (February 5, 2017): 223-43, <https://doi.org/10.1080/0735648X.2017.1284689>.
- 7 For example, the 2012 shooting at Sandy Hook Elementary School was identified as reflective of broader societal problems, while those events in Tucson, Arizona (2011), and Aurora, Colorado (2012), were perceived to be isolated events. See "Washington Post-ABC News Poll," WashingtonPost.com, accessed March 29, 2018, [https://www.washingtonpost.com/wp-srv/politics/polls/postabcpoll\\_20121216.html](https://www.washingtonpost.com/wp-srv/politics/polls/postabcpoll_20121216.html).
- 8 See, for example, Robert J. Kaminski, Barbara A. Koons-Witt, Norma Stewart Thompson, and Douglas Weiss, "The impacts of the Virginia Tech and Northern Illinois University shootings on fear of crime on campus," *Journal of Criminal Justice* 38, 1 (2010): 88-98; Ronald Burns and Charles Crawford, "School shootings, the media, and public fear: Ingredients for a moral panic," *Crime, Law and Social Change* 32, 2 (1999): 147-68; and Jaclyn Schildkraut, H. Jaymi Elsass, and Mark C. Stafford, "Could it happen here? Moral panic, school shootings, and fear of crime among college students," *Crime, Law and Social Change* 63, 1-2 (2015): 91-110.
- 9 Jaclyn Schildkraut and Tiffany Cox Hernandez, "Laws That Bit the Bullet: A Review of Legislative Responses to School Shootings," *American Journal of Criminal Justice* 39, 2 (2014): 358-74. There are, however, exceptions to this. After the Columbine shooting, the state of Colorado was successful in passing several gun control measures, including a reinstatement of background checks and prohibitions on "straw purchase" (the buying of a gun on someone else's behalf). Similarly, after the Sandy Hook event, New York State enacted comprehensive antigun violence laws called the SAFE Act.
- 10 When the investigation after the 2007 shooting at Virginia Tech revealed a loophole that prevented the shooter's involuntary detention for mental health concerns from being reported into the National Instant Criminal Background Check System (NICS)—which, as required by the Gun Control Act of 1968, would have disqualified him from legally purchasing his firearms—new legislation was passed aimed at addressing the issue. By the time of the 2012 shooting at Sandy Hook Elementary School, it still was estimated that millions of records were missing from the system. In 2017, after a gunman killed 26 at a church in Sutherland Springs, Texas, it was revealed that his domestic violence conviction (another disqualifying factor) also had not been reported to the NICS by the US Air Force. He too had legally purchased the gun used in the shooting. Similarly, in the aftermath of many high-profile mass shootings, gun control proponents often call for a renewed assault weapons ban, even though one was in effect when the Columbine shooting happened and that one of the guns used in the attack (the IntraTec TEC-DC) was on the list of prohibited weapons.
- 11 Chloe Aiello, "17 school shootings in 45 days — Florida massacre is one of many tragedies in 2018," CNBC, February 16, 2018, <https://www.cnbc.com/2018/02/14/florida-school-shooting-brings-yearly-tally-to-18-in-2018.html>.
- 12 "School Shootings in America Since 2013," Everytown For Gun Safety, accessed March 30, 2018, <https://everytownresearch.org/school-shootings/5837/>.



- 13 William J. Krouse and Daniel J. Richardson, *Mass Murder with Firearms: Incidents and Victims, 1999-2013* (Washington, DC: Congressional Research Service, July 30, 2015), <https://fas.org/sgp/crs/misc/R44126.pdf>.
- 14 David Deacon, "Yesterday's Paper and Today's Technology: Digital Newspaper Archives and 'PushButton' Content Analysis," *European Journal of Communication* 22, 1 (2007): 5-25.
- 15 Schildkraut and Elsass, *Mass Shootings: Media, Myths, and Realities*.
- 16 Importantly, Schildkraut and Elsass later clarified the element of "terroristic activity" in their definition as incidents like the shootings in San Bernardino, CA (2015) and Orlando, FL (2016) revealed that the perpetrators drew inspiration from or pledged allegiance to the Islamic State in Iraq and Syria (ISIS). Thus, the definition excludes group-sponsored killings but does not omit shootings perpetrated by ideologically motivated lone actor perpetrators.
- 17 Due to the primary reliance on media accounts to identify incidents, it is possible that not every single mass shooting event has been captured. Still, it is believed that these data are among the most comprehensive of sources, as all will have an inherent margin of error for missing events.
- 18 It is important to note that the 2017 shooting at Route 91 Harvest Festival concert in Las Vegas, NV is an outlier within the data, with 471 total casualties (counting gunshot victims only; an additional 360 victims sustained injuries other than from gunshots and shrapnel, while 96 people sustained injuries of unconfirmed types). See Joseph Lombardo, *LVMPD Criminal Investigation Report of the 1 October Mass Casualty Shooting* (Las Vegas, NV: Las Vegas Metropolitan Police Department, 2018). [https://www.lvmpd.com/en-us/Documents/1-October-FIT-Criminal-Investigative-Report-FINAL\\_080318.pdf](https://www.lvmpd.com/en-us/Documents/1-October-FIT-Criminal-Investigative-Report-FINAL_080318.pdf). After Las Vegas, the 2019 shooting at the El Paso, TX Walmart had the most total victims with 48.
- 19 One example of this is the 2014 shooting in the Isla Vista community of Santa Barbara, California.
- 20 Based on author computations. This calculation is not included in the figures presented.
- 21 Over the period examined, the demographic breakdown of the US has shifted. For this reason, direct comparison of these statistics with one specific year is not recommended.
- 22 Jaclyn Schildkraut, *Assault Weapons, Mass Shootings, and Options for Lawmakers* (Albany, NY: Rockefeller Institute of Government, Regional Gun Violence Research Consortium, 2019), <https://rockinst.org/issue-area/assault-weapons-mass-shootings-and-options-for-lawmakers/>.
- 23 Ibid.
- 24 One of the perpetrators of the STEM School shooting is a transgender youth. Although listed on the court records as a female based on the name listed on the birth certificate, he identified as male. Accordingly, he was classified as male for the purpose of these analyses. See Keith Coffman, "Transgender teen sentenced to life in prison for deadly Colorado school shooting," *Reuters*, July 24, 2020, <https://www.reuters.com/article/us-colorado-shooting/transgender-teen-sentenced-to-life-in-prison-for-deadly-colorado-school-shooting-idUSKCN24Q00D>.
- 25 "Las Vegas Sign Flowers" by Rmvisuals is licensed under CC BY-SA 4.0, <https://commons.wikimedia.org/wiki/File:Lasvegassignflowers.jpg>



## **ABOUT THE REGIONAL GUN VIOLENCE RESEARCH CONSORTIUM**

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