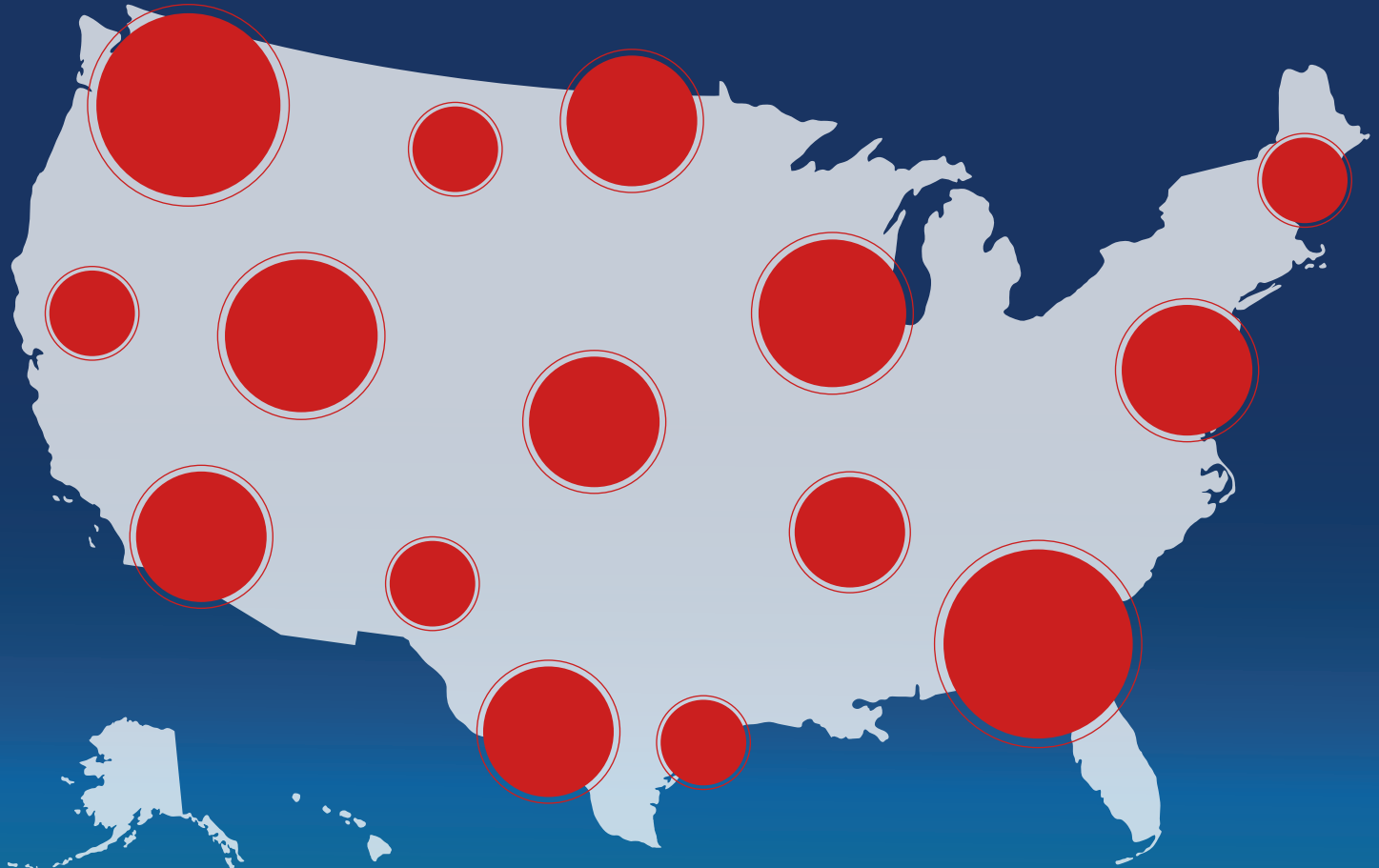




DECEMBER 2023

# NATIONAL INSTITUTE OF JUSTICE SPECIAL REPORT

## Public Mass Shootings Research



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Office of Justice Programs  
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# SPECIAL REPORT

## PUBLIC MASS SHOOTINGS RESEARCH

RACHEL A. KANE, BASIA E. LOPEZ, AND PAUL A. HASKINS

# About This Report

This Special Report of the National Institute of Justice (NIJ) presents a synthesis of select findings from over 60 publications on 18 NIJ-supported research projects on public mass shootings, including school mass shootings, since 2014. It also identifies areas of need and interest for future research and recommendations.

For the purpose of this report, we define public mass shooting as a shooting event in a public setting that causes at least four fatalities in a single event. Excluded from our definition are events that occur in the course of a separate felony or domestic incident. However, the definition of a mass shooting varies among sources; for more information see “The Challenges of Defining ‘Mass Shooting’” in Part I of this report.

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# Director's Message



The public mass shooting crisis in the United States stands out in terms of both the frequency of mass casualty events involving firearms and our perceived powerlessness to prevent them. Although mass shootings represent a small percentage of total U.S. firearms violence, they nonetheless evoke considerable fear on the part of the public.

Scientific research gives us a reason for hope, however. We know that these events are not random. Rather, perpetrators engage in notable patterns of preparation, often accompanied by warning signs. These findings point to actionable policy and practice solutions to advance prevention of public mass shooting events and mitigate the harms associated with those that transpire.

In the past decade, the National Institute of Justice has been a leader in funding research on mass shootings, sponsoring 18 studies on the subject that generated dozens of scientific papers and practitioner publications. Research findings have been used to inform training programs specific to schools and workplaces, and to inform policy at the highest levels. Together, these efforts inform ways that we can strengthen our prevention of and response to mass shootings.

This special report distills what we have learned from NIJ-sponsored research on mass shootings since 2014. It is our hope that this report will help law enforcement, communities, and researchers build more, and more effective, defenses against public mass shootings across the nation.

A handwritten signature in black ink, appearing to read 'Nancy La Vigne'. The signature is stylized and fluid, with a long horizontal line extending to the right.

Nancy La Vigne, Ph.D.  
Director, National Institute of Justice



# Contents

<b>Part I. What We’ve Learned From NIJ-Supported Research on Public Mass Shootings</b>	<b>7</b>
Overview	7
Public Interest in Public Mass Shootings	9
The Challenges of Defining “Mass Shooting”	9
Frequency and Severity	10
<b>Part II. Public Mass Shootings: Why, Where, How, and What Weapons</b>	<b>13</b>
Why Public Mass Shootings Occur	13
A Connection to One or More Victims	13
Individuals in Crisis	13
Childhood Hardship	14
Military Background	14
The Mass Shooting Landscape: Places, Demographics, and Weapons	15
Demographic Breakdown of Public Mass Shootings	16
Choice of Firearms	16
School Mass Shootings Stand Out	17
<b>PART III. Mass Shootings: Warning Behaviors, Prevention, Media Coverage, Firearms Legislation, and Forecasting</b>	<b>19</b>
Warning Behaviors: Leakage of Shooting Plans	19
More Than Half of Public Mass Shootings Are Leaked	20
In Most Cases, Leaks Are a Cry for Help	20
The Best Opportunity to Intervene	20
Prevention and Intervention	21
Crisis Intervention and Lockdown Drills	21
Threat Assessments	21
School Resource Officers	22
Media Coverage of Mass Shootings: Cause and Effect	23
Firearms Research and Legislation	23
Forecasting Public Mass Shootings	24
<b>PART IV. Mass Shootings: Implications for Policy, Practice, and Future Research</b>	<b>27</b>
Recommendations	27
Assess Insider Threat and Identify Leakage	27
Secure Firearms	28
Support Victims	29
Minimize Notoriety	30
Future Research Directions	30
Insider Threat and Leakage	31
Firearms	31
The News Media and Social Media Platforms	31
Mass Shooting Prevention	31





$$1+1=2$$

$$2+2=4$$

$$3+3=9$$

$$2+4=6$$



# PART I. WHAT WE'VE LEARNED FROM NIJ-SUPPORTED RESEARCH ON PUBLIC MASS SHOOTINGS

*Although recent scientific advances on public mass shootings fall short of enabling us to reliably predict them, key findings point to policy-relevant risk patterns.*

## Overview

The sharp report of gunfire fades soon enough, but the shockwaves from mass shootings keep reverberating, in targeted communities and across our nation.

Few events in American life shatter the public's sense of well-being or shock the national conscience as much as someone repeatedly firing into a crowd. Scientific research supported by the National Institute of Justice (NIJ) confirms the profound negative impact of public mass shootings on the average citizen's sense of safety.<sup>1</sup>

The volume of media coverage of public mass shootings greatly exceeds their frequency. These acts of extreme violence account for only a small portion of U.S. gunshot deaths and injuries every year, yet they attract extensive media coverage.<sup>2</sup> This coverage often skews toward particular qualities of the victims and those who perpetrate mass shootings, as well as toward details of the shooting, which further distorts public perception of safety.

Specifically, media coverage of public mass shootings places disproportionate emphasis on hate-motivated and mental-health-related incidents.<sup>3</sup> The media spotlight is also drawn to younger individuals who commit mass shootings, incidents with high victim counts, those with victims who are white females and children, and those with victims who are unknown to the shooter.<sup>4</sup>

Data analyses of social media in the weeks that follow public mass shootings that received high media interest confirm that these events trigger powerful negative emotions among the public.<sup>5</sup> Intense public concern is undoubtedly due in part to the difficulty of preventing mass shootings, which seem to occur relentlessly in the United States, like battering waves in a stalled storm. Over time, these violent acts also appear to be worsening, in terms of both incidence and severity.<sup>6</sup>

Certain aspects of the mass shooting crisis stand out as barriers to abatement:

- Despite promising research, mass shootings remain highly resistant to advance detection and intervention.
- Criminal justice agencies and the research community do not agree on a standard definition of the term “mass shooting,” including public mass shootings. This creates an apples-to-oranges problem that further complicates the search for scientific answers.
- Firearms are abundant in the United States and readily available to most individuals who harbor thoughts of shooting multiple victims.

Despite these issues, science has made significant progress in some areas, such as:

- Isolating fact patterns that may foreshadow mass shootings and, specifically, public mass shootings.
- Devising interventions to use when shooting plans are detected.
- Understanding some of the mental well-being challenges faced by people who plan and commit mass shootings.

For over two decades, NIJ has supported scientific studies that examine the public mass shooting problem from multiple angles.<sup>7</sup> Since 2014, NIJ has invested in numerous research projects that study mass shootings and, specifically, public mass shootings. This effort to build basic knowledge and advance our understanding has resulted in more than 60 distinct research publications.

Prominent insights to emerge from this research include:<sup>8</sup>

- *Time of personal crisis.* Most people who commit mass shootings (80%) are in a state of personal crisis at the time. Almost all who commit or plan mass shootings in schools (92%-100%) are suicidal, as are a majority of those who plan or commit mass shootings in settings other than a school (69%).<sup>9</sup>
- *Leakage of mass shooting plans.* Nearly half (48%) of all individuals who commit mass shootings leak their plans to family, friends, or others or they disclose their plans on social media.<sup>10</sup> In most instances, the leaks appear to be associated with mental well-being challenges of the person planning a mass shooting rather than a search for notoriety. This suggests that leakage may be a cry for help and creates an opportunity for interventions that incorporate mental health treatment, where appropriate.<sup>11</sup> Leakage is more often present in averted mass attacks.<sup>12</sup> Thus, leaks of mass shooting plans create, perhaps, the best chance for intervention and prevention; however, that opportunity is often missed.<sup>13</sup>
- *Targeted victims.* Mass shootings often appear to be random, with no rational connection between the shooter and the victims. In fact, most are not random. Among those who commit mass shootings, 70% had some connection to at least one victim.<sup>14</sup>
- *Weapons of choice.* Eighty percent of individuals who carried out K-12 school shootings take the firearm used in the shooting from a family member. By comparison, more than three-quarters (77%) of people who committed non-school mass shootings acquired their weapons lawfully.

Handguns are the most common weapon in both K-12 school shootings and incidents that occur elsewhere (non-school shootings). More than half (52%) of mass shootings involve the use of multiple firearms, falling into different firearm subcategories. Handguns were the firearm of choice in most school and non-school mass shootings, while semiautomatic assault weapons were used more often in K-12 shootings (38%) than in other categories of mass shootings (25%).<sup>15</sup>

- *Mental well-being.* The majority of individuals who commit mass shootings have suspected or documented histories of struggles with mental well-being (65%). Suicidal thoughts, plans, gestures, or attempts (in other words, suicidality) are also prevalent (69%). Another common mental wellness struggle is childhood exposure to potentially traumatic events (35%). In addition, a study of 20 school mass shootings found that antisocial behavior was present in 13 of the individuals' histories.<sup>16</sup> As previously discussed, leaking mass shooting plans also appears to be associated with a cry for mental health help.<sup>17</sup> Despite the prevalence of mental health struggles among individuals who commit mass shootings, profiling people based solely on their mental health will not help prevent mass shootings, as mental health struggles are common in the general population and do not necessarily indicate a predisposition toward committing a mass shooting.

- *Threat assessment as a promising prevention strategy.* Some schools adopt formal threat assessment protocols that can help school communities assess and respond to threats of mass shootings and other forms of school violence. A challenge for schools, however, is implementing threat assessments in ways that avoid or minimize unintended negative consequences.<sup>18</sup>

### Learn more:

Five Facts About Mass Shootings in K-12 Schools

## Public Interest in Public Mass Shootings

Intense media interest can obscure the fact that public mass shootings collectively represent a very small percentage of total firearm deaths and injuries.<sup>19</sup> Some scholars and other observers have asserted that the intense attention paid to these incidents would be better devoted to firearm violence more broadly. Despite their relatively small contribution to the overall number of firearm violence deaths, NIJ-sponsored research shows that public mass shootings have a powerful, negative emotional effect on the public.<sup>20</sup> They also have a strong negative effect on the public perception of safety.<sup>21</sup>

NIJ-sponsored research documents that public mass shootings have a powerful, negative emotional effect on the public. They also have a strong negative effect on the public perception of safety.

The public has a compelling interest in understanding the nature of public mass shootings and what might be done to enhance prevention, intervention, and response.<sup>22</sup>

## The Challenges of Defining “Mass Shooting”

Public agencies and research entities have devised a variety of ways to describe “mass shooting,” all of which try to capture the essence of something that has proven difficult to define. Different definitions adopt different criteria for the number of people killed and injured, whether the shooting occurred in a public or private setting (or both), whether the shooting occurred in a single place, the duration of the incident, and other variables. As noted in an op-ed by NIJ Director Nancy La Vigne, resolving that definitional ambiguity is an important first step in guiding public policy research on mass shootings.<sup>23</sup>

Major NIJ-sponsored studies of mass shootings adopted the following definition of a “public mass shooting” from the Congressional Research Service:

A multiple homicide incident in which four or more victims are murdered with firearms — not including the offender(s) — within one event, and at least some of the murders occurred in a public location or locations in close geographical proximity (e.g., a workplace, school, restaurant, or other public settings), and the murders are not attributable to any other underlying criminal activity or commonplace circumstance (armed robbery, criminal competition, insurance fraud, argument, or romantic triangle).<sup>24</sup>

The Congressional Research Service derived this definition of *public* mass shootings from the broader definition of mass shootings, which includes other crime-related mass shootings (for example, drive-by shootings) and domestic shooting incidents with at least four victims killed by firearm (not including the shooter). Although the term “mass shooting” is often used to describe public and other mass shootings (for example, those that occur within the home or in relation to another crime), it is important that research distinguish between these categories.

The differences in definitions of mass shootings likely stem from different research emphases and policy priorities. Researchers focused on firearm violence may favor definitions that focus on weapon type. Those focused on mass attacks more broadly may use definitions that cover a range of attack methods. Definitions also may vary depending on the shooter’s motives and targets.

Many researchers focus on public mass shootings. Others use the definition of mass shootings that includes multiple-victim shootings that occur in private locations, such as familicides (a multiple-victim homicide in which the shooter’s intimate partner or family members are specifically targeted). Inclusion of private-setting shootings covers more victims.<sup>25</sup> NIJ has sponsored research compiling databases that include public mass shootings and mass shootings in private settings, as well as those that occur in connection with another crime.

Statistics on the background of individuals who commit mass shootings, the settings of mass shootings, and the frequency of incidents over time vary across NIJ-sponsored research studies. Such variations can be explained by different timeframes used to identify cases and the fact that public mass shootings make up less than a fifth (18%) of all mass shootings, including private shootings and those related to other crimes.<sup>26</sup> Synthesis of research findings between multiple NIJ-sponsored databases that use different definitions may provide insights into how specific types of mass shooting crimes may be prevented. The most appropriate definition of mass shooting in any given context may depend on the research question being asked and the policy implications of interest.

Inconsistent definitions of the term “mass shooting” complicate the search for a clear understanding of its causes and effects. Multiple independent groups of NIJ researchers have found an increase in both incidence and severity of public mass shootings when sharing a similar definition. In contrast, mass shootings defined more broadly are not increasing overall despite an increased incidence of family-related private mass shootings. Mass shootings associated with other felonies are decreasing.<sup>27</sup>

Disparities in trends by mass shooting type underscore the need for comprehensive research on factors relevant to prevention that are the same or different between shooting incident categories.<sup>28</sup>

In a recent survey of studies on mass shootings, NIJ staff scientists found that the most common definition of public mass shootings was “an incident in which four or more victims are killed with a firearm in a public place.” That definition of public mass shootings is adopted for this article, unless otherwise noted.

## Frequency and Severity

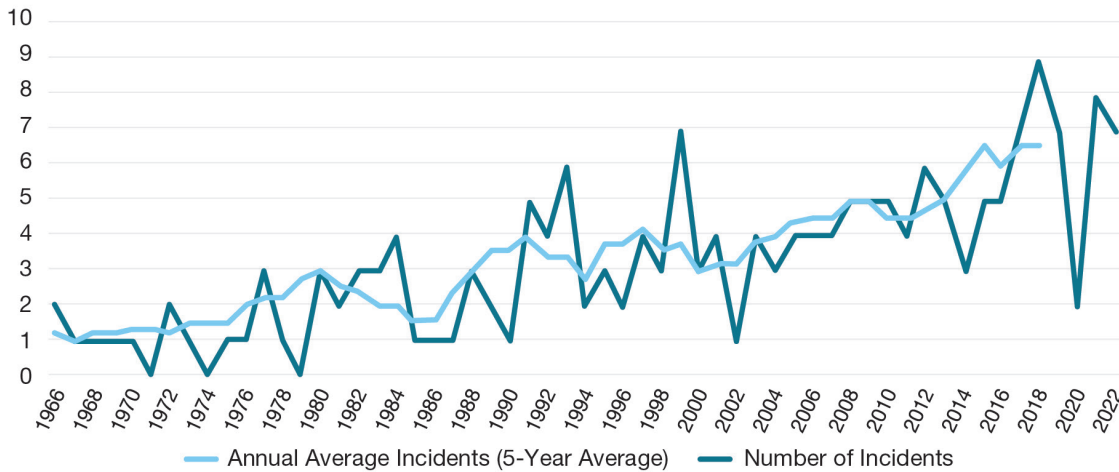
The widespread impression that public mass shootings are getting worse is generally well-founded in the data. Over the time periods analyzed in NIJ-sponsored research projects, public mass shootings have increased in both frequency (count of incidents per year) and severity (count of victims killed or injured per year or per incident).<sup>29</sup>

**The widespread impression that public mass shootings are only getting worse is generally well founded in the data.**

Results from several studies reflect a distinct upward trend in the occurrence of mass shooting events, although the statistics supporting that trend can be presented in different ways. One study analyzed open-source data on public mass shooting incidents and found that the incidence of public mass shootings has steadily increased, with average yearly public mass shooting incidents increasing over five-fold from 1966 to 2022 (see Exhibit 1).<sup>30</sup> Another study that examined public mass shootings between 2000 and 2018 found increased incidence rates (up 24%) per capita in the post-2012 period.<sup>31</sup>



**Exhibit 1. Public Mass Shooting Incidents by Year**



Evidence from another NIJ-sponsored study confirms that public mass shootings are increasing, but it does not appear to support a conclusion that mass shooting incidents under that broader definition — including private-setting and felony-related shootings — are increasing.<sup>32</sup> However, research does confirm that the number of victims killed is increasing, regardless of the definition of mass shootings used.<sup>33</sup> Increased mass shooting victimization is amplified by increased severity. Victimization rates per capita from mass public shootings increased 110% post-2010 in the study covering 2000-2018.<sup>34</sup> In the most recent data available, of the 21 mass public shootings with the highest victim counts, nearly half (48%) occurred in the last 10 years (from 2013-present).<sup>35</sup>

Severity of mass shootings is a nuanced concept. It is often measured by the number of victims killed during the shooting. However, this assessment of severity does not fully account for other factors, such as the number of people injured (as opposed to killed); the duration of the shooting event; the number of shots fired; and the seriousness of injuries. Seriousness or severity of injuries may be related to the type of weapon used, particularly the caliber and number of available rounds of ammunition used by the person who commits a mass shooting. High-capacity magazines, which can be used with assault weapons and some other firearms, increase the number of bullets that can be fired without interruption.<sup>36</sup>

The public and media focus on semiautomatic assault weapons can make it easy to overlook the fact that handguns remain the most common weapon used in all mass shootings, even public mass shootings. Sometimes semiautomatic assault weapons are used together with a handgun or handguns. In those incidents where semiautomatic assault weapons were used, handguns were also used 73% of the time.<sup>37</sup> For more discussion on the types of firearms used, see “Choice of Weapons” below.

**An analysis of state firearm laws found that bans on high-capacity magazines were significantly associated with reduced severity in public mass shootings. In addition, state gun licensing laws were associated with a reduced number of public mass shooting incidents.**

An analysis of state firearm laws found that bans on high-capacity magazines were significantly associated with reduced severity in public mass shootings (38% fewer fatalities and 77% fewer nonfatal injuries).<sup>38</sup> In addition, state gun licensing laws were associated with a reduced number of public mass shooting incidents.







# PART II. PUBLIC MASS SHOOTINGS: WHY, WHERE, HOW, AND WHAT WEAPONS

## Why Public Mass Shootings Occur

Careful analysis of the relationships, circumstances, pre-attack behaviors, and psychological backgrounds of those who commit mass shootings can help explain what factors lay a foundation for and motivate a mass shooting, especially in public places.

### A Connection to One or More Victims

A common misconception is that mass shootings are random and that the individual planning the shooting selects the target location and victims for no reason. In fact, a majority (70%) of mass shooters know at least one victim.<sup>39</sup>

The most common setting for mass shootings is the workplace, although the share of public mass shootings motivated by employment issues has declined since the 1990s.<sup>40</sup> Mass shootings at workplaces and in K-12 schools share a common characteristic: The individual planning a shooting is likely to be an insider with some real or perceived relationship to either the location or one or more victims.<sup>41</sup> An awareness of those relationships, as well as mental well-being factors, can shed light on the shooters' motivations for those crimes.

### Individuals in Crisis

NIJ-sponsored research has revealed that most individuals who commit mass shootings (80%) are in crisis, defined as a situation that overwhelms an individual's ability to cope, a condition communicated to others by a noticeable change in behavior before the shooting incident. Such crises may include acute struggles with relationships, work, or mental health.

Further, research shows that most individuals who commit public mass shootings (69%), regardless of the target location, are suicidal before or during their attack.<sup>42</sup> Percentages of suicidality among those individuals who commit K-12 school mass shootings are even higher (92%-100%). Most individuals who commit mass shootings die on the scene, either at their own hands or at the hands of law enforcement.<sup>43</sup> Suicidality in averted public mass shooting attacks appears to be lower than for completed shootings.<sup>44</sup>

### A History of Struggles With Mental Well-Being

Decades of research have made it clear that no specific mental health diagnosis or psychological profile can predict a mass shooting. Yet evidence continues to support the important role of mental health in the pathways to such violent acts.

For those who commit public mass shootings, a long history of struggles with mental well-being often precedes personal crisis and suicidality in the time leading up to the shooting incident. More than half (59%) of individuals who commit public mass shootings had a confirmed history of struggles with mental health.<sup>45</sup> Importantly, those struggles were not specific to particular diagnoses or symptoms, many of which are common in the broader population and not otherwise associated with any risk of violence.<sup>46</sup>

**For those who commit public mass shootings, a long history of struggles with mental well-being often precedes personal crisis and suicidality in the time leading up to the shooting incident.**

Another prominent mental well-being issue that affects those who commit public mass shootings is antisocial behavior, including a history of or a fixation on violence.<sup>47</sup> Sometimes those who commit mass shootings also study others who have committed mass shootings. In general, documented struggles with mental health encompass a broad range of diagnoses, but no particular diagnosis applies to the majority of the individuals who commit mass shootings.<sup>48</sup>

### **The Limited Role of Psychosis**

As mentioned, documented mental health struggles in those who commit mass shootings are complex and cannot be reduced to any particular diagnosis. Of all motivations identified for public mass shootings, psychosis is the single most common; however, it was only present in a minority (30%) of cases.<sup>49</sup> Additionally, for most of these cases, that diagnosis only played a limited role. Using mental health diagnoses alone to identify prospective mass shooters is neither feasible nor ethical. But evaluating mental well-being may help prevent future mass shootings by providing additional context for other warning signs and informing intervention where appropriate.

### **Childhood Hardship**

Childhood hardship and past experiences of traumatic events are common contributors to mental well-being struggles that affect those who commit public mass shootings. NIJ-sponsored research found childhood hardship to be common in the histories of those who commit mass shootings. Individuals who commit school mass shootings often report childhood hardship (including abuse and neglect), social rejection, and bullying.<sup>50,51</sup> The research found that 31% of individuals who commit mass shootings had documented evidence of a childhood trauma.<sup>52</sup>

Taken together, the backgrounds of those who engage in mass shootings suggest a common, though not exclusive, pathway to mass shootings. People who struggle with trauma, mental well-being, and behavioral disorders reach a breaking point as they experience a personal crisis, which often leads to suicidality. In addition, antisocial behaviors, a fixation on violence, psychosis, or hate-based ideology in tandem with suicidality can also motivate a person to commit violence.<sup>53</sup>

All elements of the common pathways described here are not present in every public mass shooting, yet they are often present. Importantly, they illuminate opportunities for further research that may inform future policy intervention and criminal justice practice improvement.

### **Military Background**

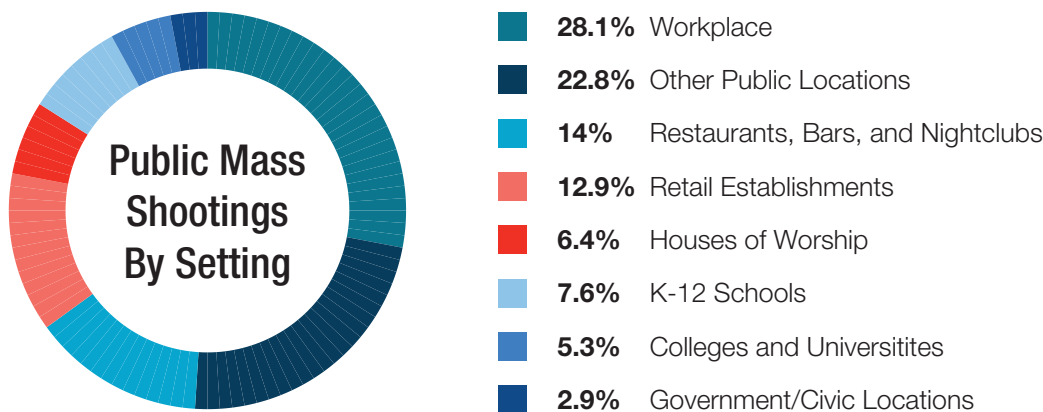
Those who commit public mass shootings are much more likely to be military veterans or to have a strong interest in the military as compared to the general population. One study showed that 29% of those who committed public mass

shootings had a history of military service, which is more than four times the overall population with current or prior military service (approximately 7%).<sup>54</sup> Notably, additional NIJ-sponsored public mass shootings research found that an interest in the military was common in case studies of individuals who committed school mass shootings, even if they were unable to serve due to age or other factors.<sup>55</sup>

## The Mass Shooting Landscape: Places, Demographics, and Weapons

It's important to understand the different common settings of mass shootings in order to develop effective mass shooting prevention and resource-distribution strategies. NIJ-sponsored research has approached this question from several angles. Under a broad definition of mass shootings (including public mass shootings, familicides, and shootings related to other crimes), the majority (65%) take place in private residences.<sup>56</sup> When the definition is confined to public mass shootings, the workplace remains the most common location of mass shootings in the United States (28%). But mass shootings in employment settings are declining as a percentage of all mass shootings by location. Other common sites of mass shootings are schools; restaurants, bars, and clubs; retail establishments; houses of worship; government buildings; and military facilities (see Exhibit 2).<sup>57</sup>

**Exhibit 2. Public Mass Shootings by Setting**



*Data source: (Peterson, "A Multi-Level, Multi-Method Investigation of the Psycho-Social Life Histories of Mass Shooters", NIJ award number 2018-75-CX-0023).*

A minority (3%) of public mass shooting incidents occur at government locations such as military facilities.<sup>58</sup> Another NIJ-sponsored study found disproportionately high media coverage of shootings at government locations, possibly reflecting heightened public interest but also contributing to a distorted perception of safety as it relates to location.<sup>59</sup> Still, military facility shootings present distinct challenges, and NIJ-sponsored mass shootings research has expanded to explore that subject. Applying prevention and intervention strategies in military communities requires developing relationships with the community and understanding its culture and organizational structure.<sup>60</sup>

Although public mass shootings occur throughout the United States, more have occurred in the American South and West than in the Northeast and Midwest. Most house of worship shootings have occurred in the South (64%). Mass shootings at K-12 schools occurred disproportionately in suburban and rural areas (46% each) and are relatively rare (8%) in urban areas.<sup>61</sup> Another NIJ-funded study found that general school violence occurs more commonly in rural and suburban environments, though the public often wrongly perceives school violence as a largely urban problem, just as in the case of school mass shootings.<sup>62</sup>

### Demographic Breakdown of Public Mass Shootings

Demographically, those who commit public mass shootings are overwhelmingly male (98%).<sup>63</sup> This is consistent both across categories, including K-12 school mass shootings and others, and across data sources, even when using broader definitions of mass shootings.<sup>64</sup> In terms of race, multiple independently conducted NIJ-sponsored studies consistently found that those who commit mass shootings are a diverse population. The exact percentages by race vary somewhat across databases. In one sample of individuals who committed public mass shootings, a study showed the racial breakdown was closely representative of U.S. population demographics.<sup>65</sup> The media’s laser focus on school mass shootings may promote an inaccurate stereotype of all persons who commit mass shootings as being younger and exclusively white.<sup>66</sup>

Media coverage analysis by NIJ-sponsored researchers confirmed that white individuals and individuals under 25 years old who commit mass shootings feature more often in media reporting. Researchers concluded that media bias accounted for the disproportionate focus on school mass shootings.<sup>67</sup>

### Choice of Firearms

Mass shootings are committed with a variety of types and quantities of firearms obtained in various ways. In general, NIJ-sponsored studies on mass shootings have found the most common firearm in a mass shooting is a handgun (72%-77%).<sup>68</sup>

**In general, NIJ-sponsored studies on mass shootings have found the most common firearm in a mass shooting is a handgun.**

The next most common weapon type depends on the type of mass shooting and the way firearm classes are defined. For public mass shootings, firearms categorized as semiautomatic assault weapons are the next most common (28%).<sup>69</sup> When considering all mass shootings, rifles (20%) and shotguns (15%) are used more frequently than semiautomatic assault weapons (9%). However, semiautomatic assault weapons are associated with a higher fatality rate.<sup>70</sup>

Exhibit 3 shows the breakdown of the number of weapons used as a percentage of public mass shootings in one of the studies.<sup>71</sup>

**Exhibit 3. Number of Weapons Used as a Percentage of Public Mass Shootings**



That study found that, for those covered cases with available data on firearm use, 77% of persons who committed public mass shootings purchased some or all their guns legally, 13% purchased their guns illegally, and 19% had taken their guns.

Notably, among those who committed a public mass shooting in a K-12 school, 80% take guns from family members, as individuals in that group tended to be too young to obtain firearms lawfully. This suggests that a younger person who is planning a mass shooting may be more prone to acquire a weapon unlawfully.

## School Mass Shootings Stand Out

Public mass shootings in K-12 schools stand apart in terms of the level of public outrage and the intensity of media coverage they generate. They differ in the details as well. As previously noted, the demographics of individuals who commit school mass shootings, mental well-being histories before and during the incident, relationships to the target, and pathways to obtaining weapons differ from public mass shootings more broadly.

NIJ-sponsored researchers conducted detailed statistical analyses of existing school mass shooting databases and constructed new public mass shooting databases from scratch. In school mass shootings, the average age of the individual who committed the shooting was 19, which was younger than the average age of all individuals who committed public mass shootings (age 34). The age range spanned from 11-32 for individuals who committed school mass shootings, and from 11-72 for public mass shootings overall.<sup>72</sup>

In an analysis of 133 school shootings, where one or more persons were intentionally shot in a school building during the school day (including 41% of school mass shootings), more deaths and injuries per incident were associated with the use of handguns or semiautomatic assault weapons, as opposed to rifles or shotguns only.<sup>73</sup> Additionally, the presence of armed security during a school shooting was associated with a 2.8-fold higher death rate. The study authors discussed that this finding could possibly be explained by shooter suicidality, considering the high rates of suicidality in this group, or by the weapons effect, wherein the presence of a firearm increases aggression. Either way, this research suggests that armed security may not be an effective mitigation strategy to reduce victimization during school mass shootings.<sup>74</sup>

Another NIJ-sponsored study of completed and averted public mass shootings found that when threats were leaked in schools, they were most commonly reported to police or other authorities. Based on this research, the study concluded that school resource officers (SROs, sworn law enforcement officers responsible for safety and crime prevention in schools)<sup>75</sup> should focus on relationship-building with students to promote trust and ensure mass shooting threats are reported.<sup>76</sup> As discussed in the Prevention and Intervention section below, SROs are typically armed and stationed on-site at schools.

Those who engage in school mass shootings are far more likely to be suicidal (92-100%) than those who commit other types of public mass shootings (69%).<sup>77</sup> Most individuals who commit mass shootings in schools are current or former students (85%).<sup>78</sup>

Other forms of gun violence in schools share some characteristics with mass school shootings. Many who engage in other types of gun violence also exhibit poor emotional regulation and a childhood history of trauma. Apart from mass shootings, most school firearm violence is domestic violence- or gang-related, with fewer victims per incident, and often occurs outside the school building and outside the normal school day.<sup>79</sup>

In K-12 schools, elementary school mass shootings are rare, but they can be more deadly than other types of mass shootings in terms of total fatalities.<sup>80</sup>





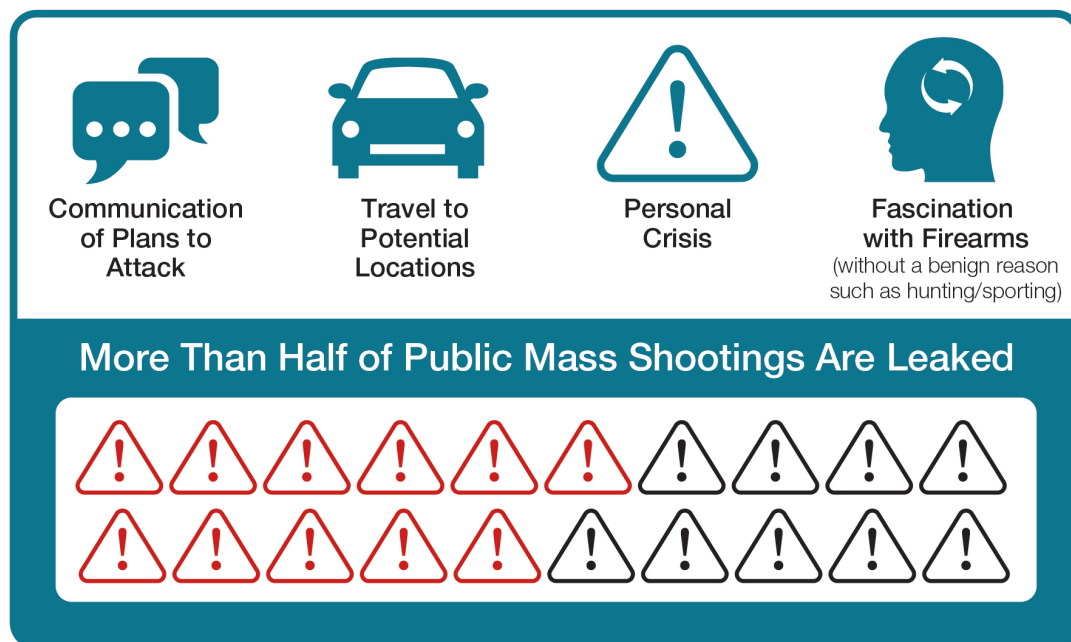


# PART III. MASS SHOOTINGS: WARNING BEHAVIORS, PREVENTION, MEDIA COVERAGE, FIREARMS LEGISLATION, AND FORECASTING

## Warning Behaviors: Leakage of Shooting Plans

Public mass shootings are so violent, destructive, and unexpected that they are likely to come as a shock to the public, especially to people in targeted communities. In many instances, however, clear warning signs precede the shooting incident, which create a window of opportunity to intervene and prevent catastrophic loss. A common warning sign is when the individual planning the mass shooting directly leaks the plan to others.

**Exhibit 4. Signs That May Precede a Mass Shooting**



## More Than Half of Public Mass Shootings Are Leaked

Many who commit mass shootings leak their plans to others in advance. Research from multiple studies found that younger individuals planning mass shootings and individuals targeting K-12 schools were likely to leak plans, whereas those motivated to some degree by psychosis were least likely to do so.<sup>81</sup> Roughly half of all completed mass shootings are leaked in some form. Out of 194 identified averted mass shootings, 99% were preceded by either a verbal (37.5%), online (22.9%), or other form of threat.<sup>82</sup>

## In Most Cases, Leaks Are a Cry for Help

Detailed analyses suggest that leaked plans are more strongly associated with cries for help than fame seeking. Media coverage following a high-profile mass shooting often gives the misleading impression that one mass shooting triggers another, as potential assailants become aware of an opportunity to gain notoriety by committing a mass shooting. In fact, little evidence supports the notion that mass shootings are contagious, at least in the short term.<sup>83</sup> Individuals who do leak their intentions to commit mass shootings in a school setting most commonly disclose their plans through various peer-to-peer networks, in person or online. These leaks may occur when the individuals consider the possibility of forgoing the planned shooting in favor of trying to resolve other issues in their lives. The leak can be a final cry for help.<sup>84</sup>

Detailed analyses show that leaked plans are more strongly associated with cries for help than fame seeking.

In general, mass shooting plans were more likely to leak when they involved school mass shootings or were planned by younger individuals.<sup>85</sup> Those in which psychosis played a role were less likely to be leaked. When mass shooting plans that targeted the workplace were leaked, they were more likely to be leaked to persons outside the targeted place of work.<sup>86</sup>

Importantly, few instances of leaked school mass shooting plans are also reported to authorities, even though reported planned shootings appear to have a greater chance of being averted. When plans for a mass shooting in school are leaked, peers are often reluctant to report known threats. Additionally, when peers do report a threat, reaction to the report is often inadequate to stop the threatened shooting.<sup>87</sup>

## The Best Opportunity to Intervene

Regardless of the reluctance of individuals to report leaks to authorities, these types of reports are likely the best opportunity for people to intervene against and prevent public mass shooting plans.<sup>88</sup> NIJ researchers observed that leakage is a “critical moment” for mental health intervention to prevent public mass shootings.<sup>89</sup>

And intervention often succeeds. Of mass shooting plans that were leaked and reported to authorities, most were reported by individuals outside of law enforcement who received or detected those leaks. Two-thirds of foiled mass shooting plots were uncovered through public reports to authorities.<sup>90</sup> As another NIJ-sponsored study notes, “everyone can prevent” mass shootings.<sup>91</sup>

After plans for a public mass shooting leak, peer intervention is often the most effective pathway to prevent the mass shooting from occurring. As previously noted, about 70% of those who commit mass shootings knew at least some of

their victims. And individuals who planned shootings in K-12 schools and workplaces tended to be “insiders” — current or former students and employees.<sup>92</sup> Research suggests that prevention strategies in these locations should focus on detecting threats and responding to the underlying crises.<sup>93</sup> For example, prior to a high-profile public mass shooting at a department store in the American South, employees reported signs of troubling behavior, but those signs were ignored.<sup>94</sup> Had workplace-based crisis intervention strategies been in place, that mass shooting might have been prevented.

Analyses of leakage of shooting plan details have yielded insights that may improve prospects for prevention. Research has found that younger individuals who plan mass shootings — particularly school shootings — have consistently been more likely to leak plans to peers, girlfriends, or acquaintances.<sup>95</sup> Persons who commit mass shootings in the workplace are more likely to leak the plans to someone outside their place of work.<sup>96</sup>

A minority (22%) of individuals who engage in mass shootings create and release a legacy document, such as a manifesto. However, when attempting to prevent and assess the risk of threats, it’s important to note that leaked plans are often non-specific. They may present as general threats of violence rather than specific plans.<sup>97</sup>

## Prevention and Intervention

### Crisis Intervention and Lockdown Drills

Crisis intervention protocols are a promising practice for foiling public mass shootings.<sup>98</sup> The core elements of crisis intervention are the identification of individuals in crisis, de-escalation, and connection to long-term resources and intervention.

**Exhibit 5. Core Elements of Crisis Intervention**



Lockdown drills are another prevention and intervention strategy. These drills train students and educators on how to respond in an active-shooter situation. However, some research has questioned the effectiveness of lockdown drills.<sup>99</sup>

### Threat Assessments

Schools are increasingly using formal threat assessment protocols to identify, analyze, and appropriately respond to threats of violence in or toward the school community. A typical threat assessment team is multi-disciplinary. Members can include educators, mental health professionals, law enforcement, and other professionals. The team conducts threat assessments as warranted by the circumstances. An appropriate response might include referring a student to mental health resources, involving law enforcement, or both.<sup>100</sup>

Many education and public safety experts agree that threat assessments can be valuable. Some research has concluded that a threat assessment appears to be a fair and equitable method in terms of effects on students by race.<sup>101</sup> Other studies have found that race was not a predictor of either threat severity determination or disciplinary outcomes.<sup>102</sup> Rather, disciplinary outcomes were predicted by weapon possession and threat severity.<sup>103</sup> An ongoing challenge, however, is implementing threat assessments in a way that minimizes unintended negative consequences for students in specific demographic or age groups.<sup>104</sup>

The emergence of threat assessments as a primary response to school violence is part of the movement away from both profiling students who may pose threats and reactive practices, such as “zero tolerance” (which relied on exclusionary discipline, such as suspension and expulsion). Positive outcomes of threat assessment in NIJ-sponsored research included averting all reported threats, reducing aggression and bullying, and reducing the use of exclusionary discipline.<sup>105</sup> Schools that used the Comprehensive School Threat Assessment Guidelines model had lower rates of exclusionary discipline than those that adopted general threat assessment guidelines.<sup>106</sup>

Threat assessment focuses on finding and helping students who pose a risk instead of the problematic task of improving the accuracy of violence predictions. According to researchers, “Threat assessment represents a fundamental shift in the broader risk assessment field away from the pursuit of predictive accuracy toward a broader approach to the prevention of violence by helping troubled individuals.”<sup>107</sup>



### School Resource Officers

One widely deployed asset intended to prevent crime and oversee safety in schools is the school resource officer (SRO), a police officer, typically armed, and stationed on-site at schools. But research suggests that the presence of SROs may not have a deterrent effect on school mass shootings.<sup>108</sup>

Importantly, school environments differ widely, as do SRO performance standards. However, research suggests that, when used, SROs should focus on building trust and communication with students, as most attacks that have been thwarted were reported to law enforcement.<sup>109</sup> Some school districts provide SRO training specific to supporting a school environment, putting less focus on punishing students while focusing more on de-escalating disputes and having SROs serve as positive role models. In these districts, students and staff are more receptive to SROs, and the SROs have positive effects on school violence in general. They also potentially reduce the risk of a school mass shooting.<sup>110</sup>

## Media Coverage of Mass Shootings: Cause and Effect

News media reporting on public mass shootings has a powerful impact on public perception of safety.<sup>111</sup> But coverage is not consistent across mass shooting events. One research report on the mainstream news media's sense of newsworthiness found substantially greater coverage of public mass shootings that:

- Have a high number of casualties.
- Target government facilities, schools, or houses of worship.
- Are perpetrated by young people, particularly those with indications of mental illness.
- Involve terrorism or hate motivation.
- End in the subject's arrest rather than death.
- To a lesser extent, include large shares of victims who are white, women, children, and strangers.

The researchers in that study found that disproportionate coverage contributes to distorted public perceptions of risk and reinforces inaccurate stereotypes.<sup>112</sup>

There is no evidence that any news media coverage of public mass shootings causes another person to commit a mass shooting in the short term (in other words, a contagion of public mass shootings).<sup>113</sup> Whether there is a long-term contagion effect is an open question. Research shows that some individuals who go on to engage in mass shootings are fixated on violence in general, as well as other incidents of mass violence, and that they study mass shootings.<sup>114</sup>

## Firearms Research and Legislation

Building better solutions to the mass shootings crisis will require new policies and practices. Research suggests that firearm restrictions may have a role to play, keeping in mind that firearms are widely available in the United States. Nearly 40% of civilians own or have access to a firearm in the home.<sup>115</sup>

Research findings justify public concern with assault weapon use in mass shootings, but the policy implications of those findings are unclear. NIJ-funded studies have found that assault weapons are overrepresented in mass shootings (12%) as compared to general homicides (1%), and that victimization is greater when assault weapons are used.<sup>116</sup> Recognizing their destructive potential, policymakers at various levels are considering assault weapon bans. However, an NIJ-supported study on policy solutions to mass shootings reported there was no evidence that assault weapon bans at the state level prevent mass shootings or reduce fatalities. (Notably, those findings did not address the fact that higher caliber ammunition found in most assault weapons cause far more destructive bodily damage than the ammunition found in most handguns and other firearms.)<sup>117</sup>

Research can help explain why an assault weapon ban might not be effective as policy. NIJ-supported databases consistently find that, despite assault weapon over representation in mass shootings, handguns are the most common weapon used (72%-77%), and even in mass shootings where assault weapons are used, handguns are typically used as well (73%).<sup>118</sup> Therefore, it is likely that mass shootings would occur using handguns even if assault weapons were unavailable. Furthermore, the authors of the policy analysis suggested that inconsistent, sometimes superficial criteria for assault weapon definitions could hinder the effectiveness of assault weapon bans.<sup>119</sup>

Still, NIJ-supported research has identified policy changes with stronger evidence bases. Bans on high-capacity magazines at the state level are associated with reduced victimization. Magazines may be a more precise target for

policy changes based on clearer criteria and more direct intervention as opposed to assault weapon bans. Additionally, gun licensing laws at the state level are associated with reduced incidence of public mass shootings, meaning that fewer mass shootings take place in states with gun licensing requirements. These two policy options may be promising avenues for harm mitigation and prevention.<sup>120</sup>

Extreme risk protection orders, which some jurisdictions refer to as gun violence restraining orders or red-flag laws, are another legal safeguard against mass shootings. Extreme risk protection orders are judicial measures to help prevent gun violence in particular cases. Courts issue these orders when evidence establishes an immediate threat of violence. The orders empower law enforcement to quickly confiscate firearms.<sup>121</sup>

NIJ-funded researchers have reached mixed conclusions on the effectiveness of these orders. For instance, a survey of 21 California gun violence restraining orders related to planned mass shootings found that in each of those cases, the threat was successfully averted. A separate analysis of firearm laws in multiple states found no association between the existence of extreme risk protection orders laws and the incidence or severity of public mass shootings overall.<sup>122</sup> Researchers, however, expressed surprise at the result and called for more research on the effectiveness of these orders.<sup>123</sup>

## Forecasting Public Mass Shootings

The relative infrequency of public mass shootings makes most of these events extremely difficult to predict and prevent.

One NIJ-supported research study adapted statistical techniques used to predict other rare occurrences, such as catastrophic earthquakes, to project the likelihood of a mass shooting. The researchers measured a 35% probability of another mass shooting occurring by the year 2040 that is as deadly as a major 2017 mass shooting that left 60 people dead, along with more than 400 injured.<sup>124</sup>









# PART IV. MASS SHOOTINGS: IMPLICATIONS FOR POLICY, PRACTICE, AND FUTURE RESEARCH

## Recommendations

NIJ-supported research on public mass shootings has opened new perspectives on who perpetrates these highly traumatic crimes and, potentially, why they do it. The body of work also suggests new pathways to capitalize on this substantial new knowledge, which will better support victims and ultimately prevent future mass shootings.

Findings from the NIJ-sponsored studies have important implications for policy and practice. But in order for these new strategies to effectively reduce the incidence and severity of mass shootings, sufficient new resources and policies must emerge. Additionally, strong collaboration and information-sharing may make a meaningful difference.<sup>125</sup>

### Assess Insider Threat and Identify Leakage

Most individuals who commit mass shootings are already familiar with the target location. They may also have knowledge of on-site security measures and drill procedures. That awareness challenges mass shooting prevention and response.

To counter an individual's potentially expansive knowledge of target details when planning a mass shooting, researchers call for a holistic approach to mass shooting prevention that focuses on understanding the overall characteristics and background of individuals with the potential to commit a mass shooting, along with any bystander reports of leaked shooting plans. A holistic approach would also engage community organizations while investing in schools to enhance counseling and mentoring initiatives.<sup>126</sup>

A common theme across the synthesized studies on mass shootings is the need for greater emphasis on reporting mass shooting threats, whether they initially leak verbally or via electronic media. Research shows that when a mass shooter leaks their plans, they commonly<sup>127</sup> share them with peers, family, coworkers, bystanders, and others. Those recipients, however, may be unfamiliar with reporting systems or unaware of the importance of reporting such plans. Additionally, they may follow a code of silence or mistrust authority figures.<sup>128</sup>

Studies propose potential solutions to those shortcomings and help to avert mass shootings. One strategy calls for teaching people how to detect behaviors that may precede a mass shooting. Behaviors to flag can include struggles at school, work, or home, combined with:

- Mental wellness issues, such as trauma or suicidality.
- A personal crisis, such as the death of a loved one, a relationship breakup, or disciplinary action at school or work.
- A fascination with firearms.

Such behaviors should be addressed through counseling and mentoring initiatives and, when appropriate, be reported to law enforcement and other authorities.<sup>129</sup>

Leaked mass shooting plans are only helpful when the recipient of the leak makes a report to authorities. Emphasizing the importance of reporting, establishing anonymous reporting systems, and helping potential leak recipients build trust with authority figures may lead to early intervention and avert a mass shooting.<sup>130</sup> Such holistic approaches should be carried out by, for example, workplaces, schools, law enforcement, and public health systems in partnership with various community stakeholders and technology partners.

Another research-based strategy calls for authorized officials to persistently and systematically follow up on a report of a leaked mass shooting threat.<sup>131</sup> A coordinated response to threats and other warning signs should include treating the potential shooter's mental health needs to help prevent a mass shooting.

It's imperative that authorities act swiftly when they learn of leaked mass shooting plans. Behaviors and other potential precursors that signal an intended mass shooting often occur close to the attempt of the planned shooting.<sup>132</sup> In that circumstance, appropriate preventive actions may involve threat assessment teams, care teams, law enforcement, and other professionals who may have a positive influence on an individual who threatens an attack.

A better way to prevent a mass shooting in schools is to identify and act on a threat before it becomes an emergency. For example, psychologists could help schools integrate threat assessment into their safety program but distinguish it from school discipline processes.<sup>133</sup> Those professionals are qualified to assess a student's misbehavior, recognize underlying educational and social-emotional needs, and identify appropriate interventions. They should be encouraged to take a problem-solving approach to help the individual understand that the threatened violent action is unnecessary.<sup>134</sup>

Another possible way to respond to an individual's observed behavior that may lead to a mass shooting is by establishing care teams at the institutional level. These care teams should consist of professionals such as psychologists, social workers, and law enforcement, all trained to mitigate personal crises and trauma. These teams can de-escalate a perceived threat while also helping the threatening individual avoid arrest or punishment. Such behavioral intervention teams in schools and workplaces may also help identify individuals at risk for committing violence against themselves or others and help determine appropriate, nonpunitive intervention strategies. That approach, when effective, may avoid the need to seek punitive actions involving law enforcement.<sup>135</sup>

Research shows that mental health-based profiles are not useful or reliable at proactively identifying individuals who are at risk of committing mass shootings. Still, it is important to understand how common mental well-being challenges interact with other warning signs to lay the foundation for preventing and proactively following up on mass shooting threats.<sup>136</sup> The fact that no particular mental health diagnosis applies to the majority of individuals who commit mass shootings underscores the importance of addressing mental health struggles as part of a larger strategy to prevent mass shootings. At the same time, it highlights the need to avoid profiling individuals based on specific mental health conditions or diagnoses.<sup>137</sup>

## Secure Firearms

A key element of researchers' proposed solutions for individuals at risk of committing mass shootings relates to safe firearm storage, identification of potential gun violence threats, and legal constraints on firearm access.<sup>138</sup> However, those recommendations must balance against a citizen's right to bear arms under the Second Amendment of the U.S. Constitution.<sup>139</sup>

As reported above in the Choice of Firearms section, the majority of individuals who commit school shootings use firearms taken from family members. Secure firearm storage in homes, especially where children or young adults are present, is an obvious and strong defense against shooting tragedies. Educating firearm-owning parents is a vital first step toward normalizing safe gun storage practices at home. An example of successful education outreach would be a messaging campaign conducted by various community stakeholders, federal or local government, or others.

On the other hand, individuals who commit public mass shootings at workplaces or other venues often acquire firearms lawfully. Potential responses to lawful acquisition of weapons by individuals who may pose a threat to society include advancements in background checks for firearm purchasers. NIJ-funded studies also proposed, as another possible solution, temporarily removing a firearm from the possession of a person on a path toward committing a mass shooting.

An unusual obsession with firearms, in tandem with other concerning behaviors discussed in preceding sections, often accompanies an individual's leakage of their mass shooting plans. Together, these elements could inform a decision on issuing an extreme risk protection order by a court.<sup>140</sup> By preventing a person in crisis from accessing firearms,<sup>141</sup> extreme risk protection orders effectively reduce suicides and domestic violence. They could also help keep firearms away from persons who are displaying troubling behaviors that may lead to a mass shooting. Given the mixed results of research on the effectiveness of extreme risk protection orders in preventing mass shootings, further studies are needed.<sup>142</sup>

It's important to note that universal background checks are often incomplete. In several cases, a person who committed a mass shooting had "slipped through cracks" and purchased one or more firearms through lawful channels when that person should not have passed a background check.<sup>143</sup> As an alternative to background checks, legal permits to purchase or possess a firearm may more effectively limit a potential shooter's access to firearms because laws requiring permits engage state or local officials in the permit process. Those officials have access to criminal, mental health, and drug- and alcohol-related records.<sup>144</sup> A study investigating the psycho-social life histories of persons who engage in mass shootings examined the impact of background checks on gun purchasers and concluded, "[B]ackground checks on all gun sales or transfers may have prevented at least 16 mass shootings, saving over 100 lives."<sup>145</sup>

Finally, studies show that most individuals who commit mass shootings use handguns, and there is no evidence to suggest that an assault weapons ban would reduce public mass shooting incidence or severity (that is, the number of victims killed). Instead, it may be more effective to restrict magazine capacity, studies suggest.<sup>146</sup> That evidence, however, does not address the association between the use of assault weapons and the severity of nonfatal injuries sustained during mass shootings. The extraordinarily destructive impact of most assault weapons on the human body, compared to that of most handguns, is a focal point of much public and law enforcement discourse on mass shootings.

## Support Victims

Mass shooting survivors and victims' families experience trauma individually, whereas communities that experience mass shootings undergo collective trauma. In all cases, trauma requires treatment. In general, many researchers agree that additional mental health services are needed for survivors and their families in the aftermath of violence. But not every community has enough qualified service providers, such as school psychologists, counselors, social workers, and therapists. Programs should be developed that encourage mental health professionals at all levels of education and experience to specialize in trauma and grief interventions.<sup>147</sup>

**Mass shooting survivors and victims' families experience trauma individually, whereas communities that experience mass shootings undergo collective trauma.**

Victim needs can vary across affected populations. Thus, services should be tailored to the needs of both direct victims (for example, families and injured individuals) as well as indirect victims (for example, surviving coworkers and students, bystanders, and first responders).<sup>148</sup> The key to meaningful assistance is not only providing it in the immediate aftermath of the mass shooting but also continuing to monitor those groups over time. A cost-efficient approach to such interventions is grounded in enhanced interagency collaboration, improved community cohesion, and enhanced safety awareness among community members.<sup>149</sup>

Another insight relates to mass shootings that occur at home, known as domestic mass shootings. One NIJ-sponsored study found that, out of all children killed during mass shootings, the number of children killed as a result of domestic mass shootings was the highest (91%).<sup>150</sup> Policies intended to protect children from mass shootings should be inclusive, encompassing private as well as public settings. Those policies might not be all-inclusive, but rather require solutions tailored to protecting children in private and public settings. Research can help shed light on similarities and differences between mass shootings in each of those settings, which can also help inform solutions.

### **Minimize Notoriety**

NIJ-funded research on media coverage of mass shootings found that news media coverage of attempted or completed mass shootings can have harmful effects when the station or publication uses sensationalistic headlines, includes gratuitous details of the background and planning process of an individual who attempts or commits a mass shooting, or frequently displays that person's photo. Avoiding such dramatizing coverage can help downplay the audience's perception that the individual is powerful. Instead, news coverage could help prevent similar catastrophic events by steering others who might be inspired to commit a mass shooting toward preventive resources, such as telling readers or listeners how to get help during a personal crisis or for suicidal impulses.<sup>151</sup>

### **Future Research Directions**

The NIJ-sponsored studies on public mass shootings have generated a series of recommendations for future research. The research focus needs to expand beyond mass shootings that occur in public places. Studies of mass shootings should be more inclusive of incidents that occur in the home or in the context of other crimes. A wider lens that captures domestic settings can help keep more people safe from mass gun violence in the long run, particularly women and children as they are more likely to be killed in a shooting in the home.<sup>152</sup>

At the same time, research on public mass shootings in schools, workplaces, places of worship, and other public places is lacking on many fronts. Areas ripe for further study include insider threat and leakage, access to firearms, the news media and social media platforms, and mass shooting prevention. Below are relevant research recommendations from various NIJ-funded studies of mass shootings.

## Insider Threat and Leakage

- *Motivations and leakage:* Future research should examine in more depth the motivations of people who leak their plans or threaten a shooting, using interviews or case studies to determine the relationships between seeking mental health services and a cry-for-help motive and between social media use and a fame-seeking motive.<sup>153</sup>
- *Insider threats:* Researchers should consider further study on the reporting of threats and the effects that reporting has on averting mass shootings.<sup>154</sup>
- *Detection of warning behaviors:* Future research should examine the time interval between when an individual first decides to commit a shooting and when the shooting occurs, as well as where warning behaviors fall within that timeframe. Research should also explore strategies to better detect warning behaviors in that limited timeframe.<sup>155</sup>

## Firearms

- *Extreme risk protection orders:* Future studies should examine not only the terms of these orders, as issued by a court, but also how they are enforced.<sup>156</sup> In cases where prior communications and behavior signal danger, researchers advocate exploring how to optimize these laws.<sup>157</sup>
- *Safe firearm storage:* The outcome and impact of safe storage practices, in the context of preventing mass shootings, requires further research.<sup>158</sup>
- *Technical firearm details and shooting severity trends:* The relationship between weapon features and shooting severity — including the number of fatalities and the number and nature of injuries — is ripe for research.<sup>159</sup>

## The News Media and Social Media Platforms

- *Social media platforms:* Research should study the impact of news stories on mass shootings that are posted to social media platforms.<sup>160</sup> For example, research into the impact of news coverage on social platforms, the potential for the viral spread of that coverage through the use of such platforms, and the impact of the social sharing and commenting on those platforms on mass shootings is of pressing importance.
- *Copycat shootings:* Research should study the impact of news coverage of shootings on the audience and the potential for copycat crimes.<sup>161</sup>
- *Digital activity of individuals who plan shootings:* Research suggests that the field needs more robust data to develop a more complete empirical picture of the digital activity of individuals who contemplate mass violence, including school shooters. Digital activity can offer an additional point of detection and intervention.<sup>162</sup>

## Mass Shooting Prevention

- *Situational crime prevention and intervention:* Studies should examine “attacked” versus “nonattacked” schools and compare the use of such tools as cameras, metal detectors, guards, and officers. Examining foiled plots to see if situational interventions identified the weapon or the potential shooter could advance our understanding of the importance of situational crime prevention and intervention.<sup>163</sup>
- *Averted attacks:* Detailed, comparative case studies of completed and averted attacks should be undertaken, as well as studies to differentiate aspects of mass shooting events, such as targets and motivations.<sup>164</sup>

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- <sup>2</sup> James Alan Fox et al., "Does Media Coverage of Mass Public Shootings Create a Contagion Effect?" *Significance* 19, no. 1 (2022): 24-28, <https://doi.org/10.1111/1740-9713.01610>.
- <sup>3</sup> James Alan Fox et al., "The Newsworthiness of Mass Public Shootings: What Factors Impact the Extent of Coverage?" *Homicide Studies* 25, no. 3 (2020): 239-55, <https://doi.org/10.1177/1088767920974412>.
- <sup>4</sup> Fox et al., "The Newsworthiness of Mass Public Shootings."
- <sup>5</sup> Jones, Brymer, and Silver, "Using Big Data to Study the Impact of Mass Violence."
- <sup>6</sup> Jillian Peterson, "A Multi-Level, Multi-Method Investigation of the Psycho-Social Life Histories of Mass Shooters," Final report to the National Institute of Justice, award number 2018-75-CX-0023, January 2021, NCJ 302101, <https://www.ojp.gov/pdffiles1/nij/grants/302101.pdf>; and Jillian Turanovic et al., "A Comprehensive Assessment of Deadly Mass Shootings, 1980-2018," Final report to the National Institute of Justice, award number 2018-75-CX-0024, July 2022, NCJ 305090, <https://www.ojp.gov/pdffiles1/nij/grants/305090.pdf>.
- <sup>7</sup> See, for example, Jolene Herson (ed.), "Preventing School Shootings: A Summary of a U.S. Secret Service Safe School Initiative Report," Final report to the Office of Justice Programs, award number 00-MU-MU-A003, March 2002, NCJ 190633, <https://www.ojp.gov/ncjrs/virtual-library/abstracts/preventing-school-shootings-summary-us-secret-service-safe-school>.
- <sup>8</sup> This article recognizes that the methods, values, definitions, and conclusions in the body of research reviewed are varied and nuanced. The conclusions here focus on more generalizable findings from the surveyed research and most common definition elements, along with descriptions of specific studies of significance.
- <sup>9</sup> Peterson, "A Multi-Level, Multi-Method Investigation."
- <sup>10</sup> Peterson, "A Multi-Level, Multi-Method Investigation."
- <sup>11</sup> Jillian Peterson et al., "Communication of Intent to Do Harm Preceding Mass Public Shootings in the United States, 1966 to 2019," *JAMA Network Open* 4, no. 11 (2021): e2133073, <https://doi.org/10.1001/jamanetworkopen.2021.33073>.
- <sup>12</sup> Michael Rocque et al., "Averting Tragedy: An Exploration of Thwarted Mass Public Shootings Relative to Completed Attacks," *Criminal Justice Review*, 2022, <https://doi.org/10.1177/07340168221117107>.
- <sup>13</sup> "Mass Attacks Defense Toolkit," RAND Corporation, 2022, TL-A1613-1, <https://doi.org/10.7249/TLA1613-1>.
- <sup>14</sup> Peterson, "A Multi-Level, Multi-Method Investigation"; and Rocque et al., "Averting Tragedy."
- <sup>15</sup> Peterson, "A Multi-Level, Multi-Method Investigation"; Michael Siegel et al., "The Relation Between State Gun Laws and the Incidence and Severity of Mass Public Shootings in the United States, 1976-2018," *Law and Human Behavior* 44, no. 5 (2020): 347-60, <https://doi.org/10.1037/lhb0000378>; Rocque et al., "Averting Tragedy"; and Turanovic et al., "A Comprehensive Assessment of Deadly Mass Shootings."
- <sup>16</sup> Peterson, "A Multi-Level, Multi-Method Investigation"; Rocque et al., "Averting Tragedy"; Jillian K. Peterson et al., "Psychosis and Mass Shootings: A Systematic Examination Using Publicly Available Data," *Psychology, Public Policy, and Law* 28, no. 2 (2021), <https://doi.org/10.1037/law0000314>; and Meagan N. Abel, Steven Chermak, and Joshua D. Freilich, "Pre-Attack Warning Behaviors of 20 Adolescent School Shooters: A Case Study Analysis," *Crime & Delinquency* 68, no. 5 (2021): 786-813, <https://doi.org/10.1177/001128721999338>.
- <sup>17</sup> Peterson et al., "Communication of Intent to Do Harm."
- <sup>18</sup> Dewey Cornell and Jennifer Maeng, "Student Threat Assessment as a Safe and Supportive Prevention Strategy, Final Technical Report," Final report to the National Institute of Justice, award number 2014-CK-BX-0004, August 2020, NCJ 255102, <https://nij.ojp.gov/library/publications/student-threat-assessment-safe-and-supportive-prevention-strategy-final>. See also National Institute of Justice, "Five Facts About Mass Shootings in K-12 Schools," August 22, 2022, <https://nij.ojp.gov/topics/articles/five-facts-about-mass-shootings-k-12-schools>.
- <sup>19</sup> Peterson et al., "Communication of Intent to Do Harm"; Fox et al., "Does Media Coverage of Mass Public Shootings Create a Contagion Effect?"; and Jones, Brymer, and Silver, "Using Big Data to Study the Impact of Mass Violence."
- <sup>20</sup> Jones, Brymer, and Silver, "Using Big Data to Study the Impact of Mass Violence."
- <sup>21</sup> Fox et al., "Does Media Coverage of Mass Public Shootings Create a Contagion Effect?"
- <sup>22</sup> Fox et al., "Does Media Coverage of Mass Public Shootings Create a Contagion Effect?"; and Jones, Brymer, and Silver, "Using Big Data to Study the Impact of Mass Violence."

<sup>23</sup> Nancy La Vigne and Alexis R. Piquero, “Reliable Data and Research on Crime Is Needed Now More Than Ever,” *The Hill*, January 4, 2023, <https://thehill.com/opinion/congress-blog/3798680-reliable-data-and-research-on-crime-is-needed-now-more-than-ever/>.

<sup>24</sup> “Public Mass Shootings in the United States: Selected Implications for Federal Public Health and Safety Policy,” Congressional Research Service, updated April 26, 2013, <https://crsreports.congress.gov/product/pdf/R/R43004>.

<sup>25</sup> Turanovic et al., “A Comprehensive Assessment of Deadly Mass Shootings.”

<sup>26</sup> Turanovic et al., “A Comprehensive Assessment of Deadly Mass Shootings.”

<sup>27</sup> Peterson, “A Multi-Level, Multi-Method Investigation”; Turanovic et al., “A Comprehensive Assessment of Deadly Mass Shootings”; Grant Duwe et al., “Forecasting the Severity of Mass Public Shootings in the United States,” *Journal of Quantitative Criminology* 38 (2021), <https://doi.org/10.1007/s10940-021-09499-5>; and Fox et al., “Does Media Coverage of Mass Public Shootings Create a Contagion Effect?” It’s important to note that some experts in the field have voiced concern that a definition tied to a fixed minimum number of people killed is too arbitrary.

<sup>28</sup> Peterson, “A Multi-Level, Multi-Method Investigation”; Duwe et al., “Forecasting the Severity of Mass Public Shootings”; Fox et al., “Does Media Coverage of Mass Public Shootings Create a Contagion Effect?”; and Turanovic et al., “A Comprehensive Assessment of Deadly Mass Shootings.”

<sup>29</sup> Peterson, “A Multi-Level, Multi-Method Investigation”; Duwe et al., “Forecasting the Severity of Mass Public Shootings”; Fox et al., “Does Media Coverage of Mass Public Shootings Create a Contagion Effect?”; and Turanovic et al., “A Comprehensive Assessment of Deadly Mass Shootings.”

<sup>30</sup> Peterson, “A Multi-Level, Multi-Method Investigation.”

<sup>31</sup> Fox et al., “Does Media Coverage of Mass Public Shootings Create a Contagion Effect?”

<sup>32</sup> Turanovic et al., “A Comprehensive Assessment of Deadly Mass Shootings.”

<sup>33</sup> Peterson, “A Multi-Level, Multi-Method Investigation”; and Turanovic et al., “A Comprehensive Assessment of Deadly Mass Shootings.”

<sup>34</sup> Fox et al., “Does Media Coverage of Mass Public Shootings Create a Contagion Effect?”

<sup>35</sup> Jillian Peterson and James Densley, The Violence Project database, V7.0, (May 2023), distributed by The Violence Project, <https://www.theviolenceproject.org/contact-us/>.

<sup>36</sup> Siegel et al., “The Relation Between State Gun Laws.” See also de Jager et al., “Lethality of Civilian Active Shooter Incidents With and Without Semiautomatic Rifles in the United States,” *Journal of the American Medical Association* 320 (2018): 1034-1035, <http://dx.doi.org/10.1001/jama.2018.11009>.

<sup>37</sup> Jillian Peterson and James Densley, The Violence Project database, V3.0, (March 2021), distributed by The Violence Project, <https://www.theviolenceproject.org/contact-us/>; and Turanovic et al., “A Comprehensive Assessment of Deadly Mass Shootings.” The definition of “semiautomatic assault weapon” used by the authors of the referenced study is as follows: “any semi-automatic gun that can accept a detachable ammunition magazine that has one or more additional features considered useful in military and criminal applications but unnecessary for sports or self-defense, such as a folding, telescoping or thumbhole rifle stock. This is consistent with the Federal Assault Weapons Ban of 1994.”

<sup>38</sup> Siegel et al., “The Relation Between State Gun Laws.”

<sup>39</sup> Peterson, “A Multi-Level, Multi-Method Investigation.”

<sup>40</sup> Peterson, “A Multi-Level, Multi-Method Investigation.”

<sup>41</sup> Peterson, “A Multi-Level, Multi-Method Investigation.”

<sup>42</sup> Peterson, “A Multi-Level, Multi-Method Investigation.”

<sup>43</sup> Peterson, “A Multi-Level, Multi-Method Investigation”; Jillian Peterson, James Densley, and Gina Erickson, “Presence of Armed School Officials and Fatal and Nonfatal Gunshot Injuries During Mass School Shootings, United States, 1980-2019,” *JAMA Network Open* 4 no. 2 (2021): e2037394, <https://doi.org/10.1001/jamanetworkopen.2020.37394>.

<sup>44</sup> Rocque et al., “Averting Tragedy.”

<sup>45</sup> Peterson, “A Multi-Level, Multi-Method Investigation.”

<sup>46</sup> Abel, Chermak, and Freilich, “Pre-Attack Warning Behaviors”; and Peterson, “A Multi-Level, Multi-Method Investigation.”

<sup>47</sup> Sometimes there can be confusion about the term “antisocial.” In psychology, this term refers to something different than how the term is sometimes colloquially used. Some aspects of antisociality that were used in the paper included: gang membership, history of violence, delinquent peers, anger management issues. Sometimes people use the term “antisocial” to mean shy or introverted, but that is not what was meant in the research we are describing. See Abel et al (given in endnote 16) for



more details. Our databases find similar factors, leading this to be a synthesized finding, but don't give a specific percentage for antisociality per se.

<sup>48</sup> Peterson, "A Multi-Level, Multi-Method Investigation"; and Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors."

<sup>49</sup> Peterson, "A Multi-Level, Multi-Method Investigation."

<sup>50</sup> Peterson, "A Multi-Level, Multi-Method Investigation"; and Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors."

<sup>51</sup> Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors."

<sup>52</sup> Peterson, "A Multi-Level, Multi-Method Investigation."

<sup>53</sup> RAND Corporation, "Mass Attacks Defense Toolkit," 2022, TL-A1613-1, <https://doi.org/10.7249/TLA1613-1>.

<sup>54</sup> Peterson, "A Multi-Level, Multi-Method Investigation." The 7% figure includes veterans outside the age range of The Violence Project database, and is from "What Percentage of Americans Have Served in the Military?" *FiveThirtyEight*, posted March 19, 2015, <https://fivethirtyeight.com/features/what-percentage-of-americans-have-served-in-the-military/>.

<sup>55</sup> Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors."

<sup>56</sup> Turanovic et al., "A Comprehensive Assessment of Deadly Mass Shootings."

<sup>57</sup> Peterson, "A Multi-Level, Multi-Method Investigation."

<sup>58</sup> Peterson, "A Multi-Level, Multi-Method Investigation."

<sup>59</sup> Fox et al., "The Newsworthiness of Mass Public Shootings."

<sup>60</sup> Brian W. Flynn et al., "Disaster Behavioral Health Research Involving Military Facilities and Populations After Mass Violence: Insights from the 2013 Washington Navy Yard Shooting," *Disaster Medicine and Public Health Preparedness*, 2021, 1-6, <https://doi.org/10.1017/dmp.2021.64>.

<sup>61</sup> Peterson, "A Multi-Level, Multi-Method Investigation."

<sup>62</sup> Kalen Flynn et al., "Violence in Rural, Suburban, and Urban Schools in Pennsylvania," *The Journal of School Nursing* 34, no. 4 (2018): 263-69, <https://doi.org/10.1177/1059840518765086>.

<sup>63</sup> Peterson, "A Multi-Level, Multi-Method Investigation"; Turanovic et al., "A Comprehensive Assessment of Deadly Mass Shootings"; and Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors."

<sup>64</sup> Peterson, Densley, and Erickson, "Presence of Armed School Officials"; and Turanovic et al., "A Comprehensive Assessment of Deadly Mass Shootings."

<sup>65</sup> Peterson, "A Multi-Level, Multi-Method Investigation."

<sup>66</sup> Peterson, Densley, and Erickson, "Presence of Armed School Officials"; Joshua Freilich et al., "Understanding the Causes of School Violence Using Open Source Data," Final report to the National Institute of Justice, award number 2016-CK-BX-0013, August 2021, NCJ 248881, <https://www.ncjrs.gov/pdffiles1/nij/grants/255102.pdf>; and Turanovic et al., "A Comprehensive Assessment of Deadly Mass Shootings."

<sup>67</sup> James Alan Fox et al., "The Newsworthiness of Mass Public Shootings."

<sup>68</sup> Turanovic et al., "A Comprehensive Assessment of Deadly Mass Shootings"; Peterson, "A Multi-Level, Multi-Method Investigation"; and James Alan Fox, "The Nature, Trends, Correlates, and Prevention of Mass Public Shootings in America, 1976-2018," Final report to the National Institute of Justice, award number 2018-75-CX-0025, March 2022, NCJ 304453, <https://nij.ojp.gov/library/publications/nature-trends-correlates-and-prevention-mass-public-shootings-america-1976>.

<sup>69</sup> "Mass Public Shootings in the United States," *The Violence Project*. The definition of "semiautomatic assault weapon" used by the authors of the referenced study is as follows: "any semi-automatic gun that can accept a detachable ammunition magazine that has one or more additional features considered useful in military and criminal applications but unnecessary for sports or self-defense, such as a folding, telescoping or thumbhole rifle stock. This is consistent with the Federal Assault Weapons Ban of 1994."

<sup>70</sup> Turanovic et al., "A Comprehensive Assessment of Deadly Mass Shootings." Please contact the authors of the referenced study for their definition of "assault weapon."

<sup>71</sup> Peterson, "A Multi-Level, Multi-Method Investigation."

<sup>72</sup> Jillian Peterson and James Densley, The Violence Project database, V7.0, (May 2023), distributed by The Violence Project, <https://www.theviolenceproject.org/contact-us/>.

<sup>73</sup> Peterson, Densley, and Erickson, "Presence of Armed School Officials." The authors combine assault weapons and submachine guns into a single variable. In this report, NIJ has combined those terms under the label of semiautomatic assault weapons for consistency.



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- <sup>74</sup> Peterson, Densley, and Erickson, "Presence of Armed School Officials."
- <sup>75</sup> "Supporting Safe Schools," *Community Oriented Policing Services (COPS)*, <https://cops.usdoj.gov/supportingsafeschools>.
- <sup>76</sup> Rocque et al., "Averting Tragedy."
- <sup>77</sup> Peterson, "A Multi-Level, Multi-Method Investigation."
- <sup>78</sup> Peterson, Densley, and Erickson, "Presence of Armed School Officials."
- <sup>79</sup> Freilich et al., "Understanding the Causes of School Violence."
- <sup>80</sup> Joshua D. Freilich et al., "Using Open-Source Data to Better Understand and Respond to American School Shootings: Introducing and Exploring the American School Shooting Study (TASSS)," *Journal of School Violence*, (2021): 1-26, <https://doi.org/10.1080/15388220.2021.1991804>.
- <sup>81</sup> Peterson, "A Multi-Level, Multi-Method Investigation"; Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors"; and Michael Roque et al., "Policy Solutions to Address Mass Shootings," *Rockefeller Institute of Government*, Final report to the National Institute of Justice, award number 2018-75-CX-0025, 2021, <https://rockinst.org/wp-content/uploads/2021/08/policy-solutions-public-mass-shootings.pdf>.
- <sup>82</sup> Rocque et al., "Averting Tragedy"; Peterson, "A Multi-Level, Multi-Method Investigation"; Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors"; and Roque et al., "Policy Solutions to Address Mass Shootings."
- <sup>83</sup> Fox et al., "Does Media Coverage of Mass Public Shootings Create a Contagion Effect?"
- <sup>84</sup> Jillian Peterson and James Densley, *The Violence Project: How to Stop a Mass Shooting Epidemic* (New York: Abrams Press, 2021).
- <sup>85</sup> Peterson et al., "Communication of Intent to Do Harm"; and Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors."
- <sup>86</sup> Peterson et al., "Communication of Intent to Do Harm."
- <sup>87</sup> Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors"; and Rocque et al., "Averting Tragedy."
- <sup>88</sup> RAND Corporation, "Mass Attacks Defense Toolkit"; and Rocque et al., "Averting Tragedy."
- <sup>89</sup> Peterson et al., "Communication of Intent to Do Harm"; Erratum in: *JAMA Network Open*, 2022 May 2, 5(5): e2216011. PMID: 34735012; PMCID: PMC8569489.
- <sup>90</sup> Rocque et al., "Averting Tragedy." See also Basia E. Lopez et al. (speakers), "NIJ-Funded Research on Mass Shootings to Advance Evidence-Based Policy and Practice," YouTube video, filmed and posted November 30, 2021, <https://nij.ojp.gov/media/video/27696>.
- <sup>91</sup> Lopez et al. (speakers), "NIJ-Funded Research on Mass Shootings."
- <sup>92</sup> Peterson, "A Multi-Level, Multi-Method Investigation"; Rocque et al., "Averting Tragedy"; and Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors."
- <sup>93</sup> Peterson and Densley, *The Violence Project: How to Stop a Mass Shooting Epidemic*.
- <sup>94</sup> "Walmart Gunman Bought Pistol Hours Before Killing and Left a 'Death Note,'" *The New York Times*, November 25, 2022.
- <sup>95</sup> Peterson et al., "Communication of Intent to Do Harm."
- <sup>96</sup> Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors"; Peterson, "A Multi-Level, Multi-Method Investigation"; Rocque et al., "Averting Tragedy"; and Lopez et al. (speakers), "NIJ-Funded Research on Mass Shootings."
- <sup>97</sup> Peterson et al., "Communication of Intent to Do Harm."
- <sup>98</sup> Peterson, "A Multi-Level, Multi-Method Investigation."
- <sup>99</sup> Peterson, Densley, and Erickson, "Presence of Armed School Officials."
- <sup>100</sup> National Institute of Justice, "Five Facts About Mass Shootings in K-12 Schools"; Anna Grace Burnette, Timothy Konold, and Dewey Cornell, "Grade-Level Distinctions in Student Threats of Violence," *Journal of School Violence* 19, no. 3 (2019): 1-13, <https://doi.org/10.1080/15388220.2019.1694031>; and Dewey Cornell and Jennifer Maeng, "Student Threat Assessment as a Safe and Supportive Prevention Strategy, Final Technical Report," Final report to the National Institute of Justice, award number 2014-CK-BX-0004, February 2020, NCJ 255102, <https://www.ncjrs.gov/pdffiles1/nij/grants/255102.pdf>.
- <sup>101</sup> Burnette, Konold, and Cornell, "Grade-Level Distinctions in Student Threats of Violence."
- <sup>102</sup> Dewey Cornell et al., "Student Threat Assessment as a Standard School Safety Practice: Results from a Statewide Implementation Study," *School Psychology Quarterly* 33, no. 2 (2018): 213-22, <https://doi.org/10.1037/spq0000220>.

<sup>103</sup> Dewey Cornell et al., "Racial/Ethnic Parity in Disciplinary Consequences Using Student Threat Assessment," *School Psychology Review* 47, no. 2 (2018): 183-95, <https://doi.org/10.17105/spr-2017-0030.v47-2>.

<sup>104</sup> Burnette, Konold, and Cornell, "Grade-Level Distinctions in Student Threats of Violence."

<sup>105</sup> Jennifer L. Maeng, Dewey Cornell, and Francis Huang, "Student Threat Assessment as an Alternative to Exclusionary Discipline," *Journal of School Violence*, (December 30, 2019): 1-12, <https://doi.org/10.1080/15388220.2019.1707682>; and Dewey Cornell and Jennifer Maeng, "Statewide Implementation of Threat Assessment in Virginia K-12 Schools," *Contemporary School Psychology* 22, no. 2 (2017): 116-24, <https://doi.org/10.1007/s40688-017-0146-x>.

<sup>106</sup> Maeng, Cornell, and Huang, "Student Threat Assessment as an Alternative to Exclusionary Discipline."

<sup>107</sup> Cornell and Maeng, "Student Threat Assessment as a Safe and Supportive Prevention Strategy."

<sup>108</sup> Peterson, Densley, and Erickson, "Presence of Armed School Officials."

<sup>109</sup> Rocque et al., "Averting Tragedy."

<sup>110</sup> Rocque et al., "Averting Tragedy."

<sup>111</sup> Fox et al., "Does Media Coverage of Mass Public Shootings Create a Contagion Effect?"

<sup>112</sup> Fox et al., "The Newsworthiness of Mass Public Shootings."

<sup>113</sup> Fox et al., "Does Media Coverage of Mass Public Shootings Create a Contagion Effect?"

<sup>114</sup> Peterson, "A Multi-Level, Multi-Method Investigation."

<sup>115</sup> Roque et al., "Policy Solutions to Address Mass Shootings."

<sup>116</sup> Definitions of "assault weapon" and "assault rifle" vary by source but generally refer to semi-automatic guns capable of accepting external magazines with one or more additional features useful in combat. Assault weapon is used here to avoid confusion, but some authors use variations on this term. See the following sources for specifics about their definitions criteria: Peterson et al., "Psychosis and Mass Shootings"; Turanovic et al., "A Comprehensive Assessment of Deadly Mass Shootings"; Peterson, Densley, and Erickson, "Presence of Armed School Officials"; Jillian Peterson and James Densley, The Violence Project database, distributed by The Violence Project, <https://www.theviolenceproject.org/contact-us/>; Peterson, "A Multi-Level, Multi-Method Investigation"; Siegel et al., "The Relation Between State Gun Laws"; and Roque et al., "Policy Solutions to Address Mass Shootings."

<sup>117</sup> Siegel et al., "The Relation Between State Gun Laws"; and Roque et al., "Policy Solutions to Address Mass Shootings."

<sup>118</sup> Peterson et al., "Psychosis and Mass Shootings"; Turanovic et al., "A Comprehensive Assessment of Deadly Mass Shootings"; Peterson, Densley, and Erickson, "Presence of Armed School Officials"; Peterson and James, The Violence Project database; Peterson, "A Multi-Level, Multi-Method Investigation"; Siegel et al., "The Relation Between State Gun Laws"; and Roque et al., "Policy Solutions to Address Mass Shootings."

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<sup>120</sup> Siegel et al., "The Relation Between State Gun Laws"; Roque et al., "Policy Solutions to Address Mass Shootings"; and Gary Kleck, "Large-Capacity Magazines and the Casualty Count in Mass Shootings: The Plausibility of Linkages," *Justice Research and Policy* 17, no. 1 (2016): 28-47, <https://doi.org/10.1177%2F1525107116674926>.

<sup>121</sup> See "Commentary for Extreme Risk Protection Order Model Legislation," U.S. Department of Justice, June 7, 2021 (updated October 25, 2022), <https://www.justice.gov/doj/reducing-gun-violence/commentary-extreme-risk-protection-order-model-legislation>.

<sup>122</sup> Siegel et al., "The Relation Between State Gun Laws"; and Hannah S. Laqueur and Garen J. Wintemute, "Identifying High-Risk Firearm Owners to Prevent Mass Violence," *Criminology & Public Policy* 19, no. 1 (2019): 109-27, <https://doi.org/10.1111/1745-9133.12477>.

<sup>123</sup> Roque et al., "Policy Solutions to Address Mass Shootings"; Siegel et al., "The Relation Between State Gun Laws"; and Laqueur and Wintemute, "Identifying High-Risk Firearm Owners."

<sup>124</sup> Duwe et al., "Forecasting the Severity of Mass Public Shootings."

<sup>125</sup> Duwe et al., "Forecasting the Severity of Mass Public Shootings."

<sup>126</sup> Peterson, "A Multi-Level, Multi-Method Investigation"; Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors."

<sup>127</sup> Michael Rocque et al., "Averting Tragedy: An Exploration of Thwarted Mass Public Shootings Relative to Completed Attacks," *Criminal Justice Review* (2022), <https://doi.org/10.1177/07340168221117107>.

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- <sup>129</sup> Peterson, "A Multi-Level, Multi-Method Investigation"; Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors"; Megan Stubbs-Richardson and David C. May, "Social Contagion in Bullying: An Examination of Strains and Types of Bullying Victimization in Peer Networks," *American Journal of Criminal Justice* 46 (2020), <https://doi.org/10.1007/s12103-020-09572-y>; Shelby Stohlman and Dewey Cornell, "An Online Educational Program to Increase Student Understanding of Threat Assessment," *Journal of School Health* 89, no. 11 (2019): 899-906, <https://doi.org/10.1111/josh.12827>; and Peterson et al., "Communication of Intent To Do Harm."
- <sup>130</sup> Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors"; Stohlman and Cornell, "An Online Educational Program"; and Peterson et al., "Communication of Intent to Do Harm."
- <sup>131</sup> RAND Corporation, "Mass Attacks Defense Toolkit."
- <sup>132</sup> Freilich et al., "Understanding the Causes of School Violence"; Rocque et al., "Averting Tragedy"; and RAND Corporation, "Mass Attacks Defense Toolkit."
- <sup>133</sup> Cornell et al., "Racial/Ethnic Parity in Disciplinary Consequences."
- <sup>134</sup> Cornell et al., "Racial/Ethnic Parity in Disciplinary Consequences."
- <sup>135</sup> Peterson and Densley, *The Violence Project: How to Stop a Mass Shooting Epidemic*, 180-187.
- <sup>136</sup> Peterson and Densley, *The Violence Project: How to Stop a Mass Shooting Epidemic*.
- <sup>137</sup> Peterson, "A Multi-Level, Multi-Method Investigation"; and Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors."
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- <sup>141</sup> "Commentary for Extreme Risk Protection Order Model Legislation," U.S. Department of Justice.
- <sup>142</sup> Peterson et al., "Psychosis and Mass Shootings"; Siegel et al., "The Relation Between State Gun Laws"; and Laqueur and Wintemute, "Identifying High-Risk Firearm Owners."
- <sup>143</sup> Peterson, "A Multi-Level, Multi-Method Investigation," 14.
- <sup>144</sup> Siegel et al., "The Relation Between State Gun Laws."
- <sup>145</sup> Peterson, "A Multi-Level, Multi-Method Investigation," 14.
- <sup>146</sup> Turanovic et al., "A Comprehensive Assessment of Deadly Mass Shootings"; Peterson, "A Multi-Level, Multi-Method Investigation"; Siegel et al., "The Relation Between State Gun Laws"; and Rocque et al., "Policy Solutions to Address Mass Shootings."
- <sup>147</sup> Jones, Brymer, and Silver, "Using Big Data to Study the Impact of Mass Violence"; Turanovic et al., "A Comprehensive Assessment of Deadly Mass Shootings"; Peterson, "A Multi-Level, Multi-Method Investigation"; and Abel, Chermak, and Freilich, "Pre-Attack Warning Behaviors."
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- <sup>149</sup> Jones, Brymer, and Silver, "Using Big Data to Study the Impact of Mass Violence."
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- <sup>152</sup> Turanovic et al., "A Comprehensive Assessment of Deadly Mass Shootings."
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<sup>158</sup> Peterson, "A Multi-Level, Multi-Method Investigation."

<sup>159</sup> Siegel et al., "The Relation Between State Gun Laws."

<sup>160</sup> James Alan Fox et al., "The Contagion of Mass Shootings: The Interdependence of Large-Scale Massacres and Mass Media Coverage," *Statistics and Public Policy* 8, no. 1 (2021): 1-22, <https://doi.org/10.1080/2330443x.2021.1932645>.

<sup>161</sup> Fox et al., "The Contagion of Mass Shootings."

<sup>162</sup> Abel, Chermak, Freilich, "Pre-Attack Warning Behaviors."

<sup>163</sup> Freilich et al., "Understanding the Causes of School Violence."

<sup>164</sup> Rocque et al., "Averting Tragedy."





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