

SPECIAL ISSUE ARTICLE**COUNTERING MASS VIOLENCE IN THE UNITED STATES****Patterns and prevalence of lethal mass violence****Grant Duwe** 

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Research Summary: Mass shootings have been identified as a novel American crime problem. The term is merely a new name, however, for an older crime problem—mass murder. The social construction of the mass shooting and mass murder problems have both been driven by “mass public shootings”—incidents that occur in the absence of other criminal activity (e.g., robberies, drug deals, and gang “turf wars”) in which a gun was used to kill four or more victims at a public location within a 24-hour period. Using data on 845 mass shootings, including 158 mass public shootings, which occurred in the United States between 1976 and 2018, in this study, I analyze trends in their prevalence and severity (i.e., number of victims killed and wounded). After controlling for growth in the U.S. population, the results show the late 1980s and early 1990s had the highest incidence of mass shootings. Both the incidence and severity of mass public shootings, on the other hand, have increased over the last decade. I also describe the patterns of mass public shootings by reporting incident and offender characteristics.

Policy Implications: Despite the recent growth in mass public shootings, the infrequency with which they occur makes it very challenging to develop broad measures that will reduce their incidence or severity. It may therefore be more effective to focus on strategies that have shown promise in decreasing violence in general.

KEYWORDS

lethal mass violence, mass murder, mass public shootings

During the late 1980s and early 1990s, a string of high-profile public shootings led to claims that *mass murder* was on the rise and had become “commonplace” in the United States (Duwe, 2007). More recently, the occurrence of massacres in places such as Newtown, Connecticut; Orlando, Florida; and Las Vegas, Nevada, have prompted assertions that *mass shootings* have grown more prevalent and are now “routine” (Cohen, Azrael, & Miller, 2014; Korte, 2016). Yet, the emergence of the mass murder and mass shooting problems have both been fueled by *mass public shootings*, which are incidents in which multiple victims are gunned down in a public place for no apparent rhyme or reason (Duwe, 2018).

In part as a result of the surplus of terms that have been used to describe mass violence, there has been, as Fox and Levin (2015) have pointed out, “mass confusion” over the phrase “mass shooting”. It is therefore important, at the outset, to clarify the meaning of terms such as “mass murder”, “mass shooting”, or “mass public shooting”. A mass murder has been defined as an incident in which four or more victims are killed—with any type of weapon—within a 24-hour period (Duwe, 2007; Fox & Levin, 2011). A mass shooting, as defined here, is a mass murder carried out with a firearm. Therefore, a mass shooting is any gun-related mass murder regardless of whether it occurred in a residential setting or a public location. A mass shooting would thus include incidents such as the 1890 Wounded Knee Massacre, the 1929 St. Valentine’s Day Massacre, and the recent mass murders in Orlando and Las Vegas.

A mass public shooting, meanwhile, is a gun-related mass murder that takes place at a public location in the absence of other criminal activity (e.g., robberies, drug deals, and gang “turf wars”), military conflict, or collective violence. Although the Las Vegas massacre would qualify as a mass public shooting, the Wounded Knee and St. Valentine’s Day massacres would not. Mass public shootings can thus be seen not only as a type of mass murder but also as a specific type of mass shooting.

In this study, I describe the patterns and prevalence of mass violence and, in particular, gun-related mass killings. In doing so, I address not only whether mass shootings have been on the rise but also the profile of those who commit this type of violence. In the next section, I begin by discussing how mass murder and, more recently, mass shootings have been socially constructed as crime problems. Next, given recent concerns over whether mass shootings have increased, I begin by delineating trends in their prevalence. To describe the patterns of mass public shootings, I conclude by reporting incident and offender characteristics.

1 | MASS MURDER: SOCIAL CONSTRUCTION OF A “NEW” CRIME PROBLEM

Whereas the objectivist approach can be used to define social problems in terms of their objective conditions, the social constructionist perspective can be used to maintain that social problems are the product of “the activities of individuals and groups making assertions of grievances and claims with respect to some putative conditions” (Spector & Kitsuse, 1977, p. 75). The news media are invariably the primary means through which social problems are constructed, either by making claims directly (i.e., primary claimsmaking) or, more frequently, by reporting the claims made by others (i.e., secondary claimsmaking). Prior research findings have revealed that the “discovery” of a new crime problem is often triggered by the occurrence of a widely publicized event, or landmark narrative, which ultimately is used to define the essence of the problem (Adler, 1996; Chermak, 2003; Duwe, 2007; Nichols, 1997). When claimsmakers construct a social problem, they usually focus on describing the nature of the problem, how prevalent it is, and what can be done to control it.

In previous research (Duwe, 2005, 2007), I have drawn on the social constructionist perspective to examine how and why mass murder was identified as a new crime problem. Even though research findings have shown that mass murder rates during the 1920s and 1930s were nearly as high as they were from the mid-1960s through the 1990s (Duwe, 2004), there was a paucity of well-known mass killings in the United States prior to the mid-1960s. Therefore, when claimsmakers “discovered” mass murder during the 1980s, the high-profile massacres committed by Richard Speck and Charles Whitman in the summer of 1966 (both of which were referred to as “crimes of the century” at the time they were committed) were seen as the beginning of an unprecedented mass murder wave. From the summer of 1966 to the mid-1980s, which is when claimsmakers began making claims about mass murder, there had been a steady accumulation of well-publicized cases. The Speck and Whitman massacres thus provided claimsmakers with highly visible, familiar, and credible landmark narratives to support the claim that the mid-1960s marked the onset of the age of mass murder.

Although mass murder was, according to claimsmakers, a historically new crime that emerged in the mid-1960s, the nearly two-decade delay in the identification of mass murder as a novel crime problem was a result of the “discovery” of another crime problem—serial murder. Before the 1980s, the term “mass murder” was widely used as a catchall phrase to refer to all incidents in which several persons were killed. Beginning in the latter half of the 1960s, there was a dramatic rise in serial killings, or at least in the number publicized by the media (Jenkins, 1994), which later gave rise to the creation of the serial murder concept in the late 1970s. The creation of this concept narrowed the meaning of the term “mass murder.” Popular use of the new, more limited definition was evident as early as 1984, but there was still a tendency, especially early on, to conflate the two types of multiple murder. For claimsmakers, then, it seemed reasonable to assume that mass murder, like serial murder, had increased dramatically since the mid-1960s.

After mass murder was identified as a new crime, claimsmakers characterized what kind of problem it was by relying on the most heavily publicized cases as typifying examples (Duwe, 2005). Existing research findings have demonstrated that even though almost all mass murders are newsworthy, familicides and felony-related massacres are among the least newsworthy (Duwe, 2000). Familicides most often involve a male head of the household killing his partner (i.e., spouse, ex-spouse, or fiancée), their children, relatives, or some combination of these. Familicides almost invariably take place within the privacy of a residential setting, and the offender commits suicide in approximately two thirds of these cases. Felony-related massacres, on the other hand, are mass murders committed in connection with other crimes such as robbery, burglary, gang “turf wars,” or contract killings (i.e., mob hits). In contrast to familicides, which are almost always carried out by a lone offender, felony-related massacres are more likely to involve multiple offenders (Duwe, 2007).

The most newsworthy mass murders are more likely to involve an offender who uses a gun, especially an assault weapon, to shoot a large number of stranger victims in a public location (Duwe, 2000). Such cases have been referred to as “mass public shootings,” which often dominate the news cycle because they involve, on average, a greater number of killed and injured victims than other mass murders (Duwe, 2007). Previous research findings have demonstrated that the “body count” is the strongest predictor of the extent to which mass killings get reported by the news media (Duwe, 2000). That mass public shooters are more likely than other mass murderers to kill strangers connotes an indiscriminate selection of victims, which increases their newsworthiness by conveying the impression that anyone could be a victim of a mass killing (Duwe, 2000). Furthermore, the audience may be more likely to identify with the victims of mass public shootings, who were simply in the wrong place at the wrong time.

Mass public shootings are also, by their definition, highly visible acts of violence. Because publicly occurring mass murders usually involve people who witnessed and survived the attack, these incidents

frequently give the news media the means to “deliver a fascinating firsthand account to the audience, allowing them to vicariously experience the horror of the event” (Duwe, 2000, p. 391). Mass public shootings are generally more newsworthy than other mass murders because they are “riveting, emotionally evocative incidents” that epitomize “news as theater—a morality play involving pure, innocent victims and offenders who seemingly went ‘berserk’ in a public setting” (Duwe, 2000, p. 391).

Given the reliance on the highest profile cases as typifying examples, mass public shootings defined the essence of mass murder when it was socially constructed as a new crime problem during the 1980s and 1990s. Indeed, mass murder was widely seen as a gun control, workplace violence, and school shooting problem mainly because mass public shootings involve individuals who use guns to carry out an attack at a public location, such as a school or the workplace. Because perceptions help shape policy recommendations, proposals to reduce mass murder were generally focused on reforming gun laws and school and workplace violence policies (Duwe, 2005). Although mass public shootings were seen as the prototypical mass murder, it is worth emphasizing that they are rare within the context of mass murder, which is itself a rare form of violence.¹ Indeed, mass public shootings make up only 12% of all mass killings (Duwe, 2004, 2007) and a mere .0003% of all homicides annually. In contrast, familicides and felony-related massacres are more common, accounting for nearly 70% of mass murders (Duwe, 2007). Yet, because familicides and felony-related massacres are less newsworthy and, thus, much less likely to have been used as typifying examples, proposals to curb the incidence and/or severity of mass murder are seldom focused on domestic violence, drug policy, or urban crime.

In calling attention to the newly identified mass murder problem in the late 1980s and early 1990s, claimsmakers asserted it was on the rise. To their credit, however, they also emphasized how rare it was, which may have tempered the urgency to “do something” about mass murder (Duwe, 2005). Still, claimsmakers experienced some success in constructing mass murder. The growing number of high-profile mass public shootings during the 1980s and 1990s not only led to the creation of policies designed to address school and workplace violence, but it also provided gun control proponents with opportunities to advance their claims about the need for a federal assault weapons ban (Duwe, 2005, 2007; Koper & Roth, 2001, 2002). For example, after a 1989 mass murder committed in Louisville, Kentucky, with an AK-47 rifle, California congressman Pete Stark warned, “There will be more and more mindless mass murders until the President and Congress put controls on the sales of assault weapons” (*Los Angeles Times*, 1989). In 1994, gun control activists won a major victory with passage of the federal assault weapons ban (AWB). Ten years later, however, the ban was allowed to expire.

2 | MASS SHOOTINGS: NEW NAME FOR AN OLD PROBLEM

At the dawn of this century, the mass murder problem had faded from prominence. Beginning in the mid-2000s, however, a problem bearing a similar, yet slightly different, name emerged to take its place—mass shootings. As Roeder (2016) demonstrated, the news media’s use of the phrase “mass shooting” has increased dramatically during the last 10 years. In fact, prior to the 2000s, it had hardly been used at all.

Just as mass public shootings were central to the social construction of mass murder in the 1980s and 1990s, the same is true for the mass shooting problem over the last decade. From the 2007 massacre at Virginia Tech to the 2018 Parkland school shooting, it has been the catastrophic, high-profile mass public shootings, as defined here, that have galvanized the public and epitomized the essence of the mass shooting problem. Whereas mass public shootings were generally referred to as “mass murders”

prior to the 2000s, they have, since the mid-2000s, typically been labeled as “mass shootings.” The term “mass shooting” is therefore a new name for a familiar problem as it has supplanted “mass murder” as the new crime category under which mass public shootings fall (Duwe, 2018).

Given the importance of mass public shootings to the social construction of both problems, mass shootings have, to a large extent, been typified in much the same way that mass murders were in the 1980s and 1990s (Duwe, 2018). Because the typification process involves influencing perceptions, which, in turn, are then used to shape the solutions offered for a problem, we see that—like the mass murder problem—the policy proposals to control mass shootings have continued to be focused on reforming gun legislation and school and workplace violence policies. This similarity notwithstanding, there have been several notable ways in which the social construction of the mass shooting problem has differed from its predecessor.

First, there has been more emphasis placed on the presence of serious mental illness as a result of the high rate observed among mass public shooters (Duwe, 2016), which also highlights a difference in how the mass murder and mass shooting problems have been typified. Although generally absent from the social construction of the mass murder problem, mental health reform has been identified as a strategy to help control mass shootings. More recently, however, there have been efforts to challenge the notion that there is a link between mental health and mass violence.

Second, whereas the mass murder problem emerged prior to the advent of the Internet, the mass shooting problem has been constructed during the age of social media. With the possible exception of the 1966 sniper attack at the University of Texas at Austin, video footage (live or recorded) of mass public shootings that occurred during the twentieth century did not exist. Recently, however, it has not been uncommon for bystanders to capture the terror of a mass public shooting on their phones and later disseminate it on social media. More broadly, the emergence of social media has made it possible for anyone to promulgate claims about a social problem, including mass shootings.

Third, compared with mass murder, there has been much less unanimity in how mass shootings have been defined. With mass murder, the general consensus was that it comprised incidents in which at least three or four victims were murdered within a brief period of time. But as the phrase “mass shooting” has grown in popularity (Roeder, 2016), so have the efforts to define it. In addition to entities such as the Gun Violence Archive, Everytown for Gun Safety, Mass Shooting Tracker, *USA Today*, and *Mother Jones*, several researchers (Krause & Richardson, 2015; Lankford, 2013; Schildkraut & Elsass, 2016) have each developed their own distinct mass shooting definitions. These definitions vary on the basis of the number of victims shot (fatally or nonfatally), the number of victims killed, the location where the shooting took place, the motive for the shooting, whether the manner in which the victims were shot was indiscriminate, and whether the offender is included as one of the victims in the event he or she committed suicide or was killed by police (i.e., suicide by cop). The main purpose behind these efforts at defining mass shootings, of course, has been the collection of data to document their patterns and, more commonly, their prevalence. The methods used to collect data have also varied as the Congressional Research Service (Krause & Richardson, 2015) and *USA Today* (Overberg, Upton, & Hoyer, 2013) used both news reports and the Federal Bureau of Investigation’s (FBI’s) Supplementary Homicide Reports (SHR) as data sources, whereas others relied strictly on news coverage.

Finally, and perhaps not surprisingly, the various definitions and data collection methods have yielded wildly different findings about the incidence of mass shootings and the trends in their prevalence. Incidence estimates have run the gamut from the single digits to more than several hundred per year, whereas the conclusions reached about recent trends in the prevalence of mass shootings have ranged from an increase to no increase at all.

3 | DATA AND METHOD

The data on mass shootings (including mass public shootings) in the United States come from two main sources: the FBI's SHR and news coverage. The SHR contains incident, victim, and offender information on most murders committed in the United States. The SHR did not become a valuable source of homicide data, however, until it underwent a major revision in 1976 (Riedel, 1999). Therefore, given that 2018 is the most recent year for which SHR data are available, the timeframe for this study covers the 1976–2018 period.

Although the SHR is the most comprehensive source of U.S. homicide data, it has several notable limitations. First, because the SHR is a voluntary program involving law enforcement agencies across the country, an estimated 8% of all homicides are not reported (Fox, 2000). Second, the SHR data frequently contain several coding errors (Duwe, 2000; Wiersema, Loftin, & McDowall, 2000). For example, in a previous study (Duwe, 2000), I found cases in the SHR data where victims were coded twice for the same incident, wounded victims were counted as fatal victims, more than one law enforcement agency reported the same homicide, and offenders were counted as victims in murder-suicides. Finally, the SHR does not include important information such as the location where the homicide took place or the number of wounded victims.

Compared with the SHR, news accounts usually provide more detailed information, including the location where the homicide occurred (e.g., private residence, school, or workplace) and whether any victims were injured. Moreover, given that some murders are not reported to the SHR, the use of news reports can help minimize the underreporting problem. Still, using news coverage as the sole source of data on mass shootings (or mass murders in general) has its own limitations, too. Even though most mass murders, including mass shootings, are reported by the press, many receive limited, mostly local coverage (Duwe, 2000; Overberg et al., 2013). Successful identification of mass shootings that have taken place is therefore highly dependent on the news media database being used, the news organizations included within the database, and the search terms used. Indeed, not all cases are described by the news media as “mass shootings” or “mass murder,” which is why it is necessary to also use search terms such as “quadruple shooting”, “quintuple homicide”, and so on. Moreover, news coverage is generally less accessible for older incidents that occurred farther back in time.

The limitations of relying on a single data source, such as news accounts, to identify mass shootings are apparent when we look at two popular, widely cited sources—*Mother Jones* and the Gun Violence Archive. Relying on SHR data and news accounts as sources of data and using a definition of mass shootings similar to the one used by *Mother Jones*, I found the *Mother Jones* list missed more than 40% of the mass shootings occurring from 1982 to 2013 that ostensibly met its definitional requirements. Furthermore, the underreporting problem with the *Mother Jones* list was more severe for the older cases that took place in the 1980s and 1990s (Duwe, 2014).

Using a broad mass shooting definition—any incident in which a gun was used to kill *and/or* injure four or more victims—the Gun Violence Archive identified 277 incidents that took place in the United States in 2014. Of these, 14 would meet the mass shooting definition used here (i.e., four or more victims killed with a gun in a 24-hour period). In comparison, the data used in this study contain 20 mass shootings that occurred in 2014, which means the Gun Violence Archive missed 30% of the cases in which four or more victims were killed with a firearm.²

To identify mass shootings that took place in the United States between 1976 and 2018, I relied on a triangulated data collection strategy that has been used in prior research on mass murder (Duwe, 2000, 2004, 2007; Duwe, Kovandzic, & Moody, 2002; Overberg et al., 2013) and mass shootings (Krause & Richardson, 2015). More specifically, after using the SHR to identify when and where

gun-related mass murders took place, I searched online newspaper databases to collect additional information not included within the SHR, such as the number of injured victims and the specific location where the incident occurred. In doing so, I was able to not only identify cases not reported to the SHR but also correct errors in the SHR data. I also consulted unpublished mass shooting data sets from Brot (2016) and the Congressional Research Service (2014), which added a handful of cases.

The mass shooting definition used here is straightforward, easy to operationalize, and consistent with the definitions used by Fox and Levin (2015), *USA Today* (Overberg et al., 2013), and the Congressional Research Service (Krause & Richardson, 2015). It is different, however, from other popular mass shooting definitions such as those developed by the Gun Violence Archive, Mass Shooting Tracker, or *Mother Jones*, although it is worth pointing out the *Mother Jones* “mass shooting” definition is similar to the mass public shooting definition described earlier.

In defining mass shootings, I did not include other criteria found in these definitions, such as wounded victims or victim selection, for a few reasons. First, even though a reasonable case could be made that “mass shootings” should include incidents in which, say, four victims were wounded and none were murdered, there is no data source currently available that could comprehensively document these types of cases. Although news coverage is, as explained later on, a critical source of data on mass shootings, it has several significant limitations, especially when used as the sole data source, which would be magnified for less severe cases. Moreover, these less severe shootings are not the types of cases that have engendered the recent fear and concern over the mass shooting problem. Second, subjective criteria such as whether victims were indiscriminately targeted is problematic from an operational standpoint. As noted in the next section, even an objective criterion such as location (did the incident occur in a residence or a public setting?) can be challenging to operationalize.

Overall, the mass shooting data set contains 845 incidents that occurred between 1976 and 2018. I further examined these cases to determine which ones met the criteria for classification as a mass public shooting. The main issue in classifying mass public shootings centers on how “public location” is operationalized. Measuring public location somewhat broadly, I considered a public place to be any area outside of a residence, which includes single-family dwellings, duplexes, townhouses, apartments, and so on. There were some mass shootings in which victims were shot in both residential and public settings. In these instances, I considered an incident to have taken place in a public location if at least half of the fatal victims were killed outside of a residence.

Of the 845 mass shootings that occurred in the United States between 1976 and 2018, there were 158, an average of 3.7 per year, that were mass public shootings. As such, a mass public shooting is not only an infrequent form of mass murder, but it is also a rare type of mass shooting. The most common types of mass shootings were familicides and felony-related massacres, which made up nearly three fourths of the cases.

The more detailed news reports were used to record additional data on the 158 mass public shootings, including the presence of mental illness, precipitating events, the communication of threats, and the outcome of the case. More specifically, I examined the available news accounts to determine whether the offender had communicated threats, experienced a precipitating event such as the loss of a job or relationship, been diagnosed with a mental disorder, seen a mental health professional, or been observed by family, friends, or acquaintances to have experienced mental health problems.

The incidence and severity trend data presented in this article are expressed on a per capita basis. Rather than using the conventional per 100,000 rate, I used an annual rate of 100 million in the U.S. population as a result of the rarity of mass shootings. Furthermore, to illustrate trends over time better, I present the rates in terms of 3-year, 5-year, and 10-year moving averages.

4 | TRENDS IN THE PREVALENCE AND SEVERITY OF MASS SHOOTINGS

Table 1 shows data on the prevalence and severity of mass shootings during the 1976–2018 period. For each prevalence and severity measure, I bolded the highest value and bolded and underlined the lowest value. For example, the smallest annual number of mass shootings (9) was observed twice—once in 1979 and one more time in 1985. The “*N*” value is bolded and underlined for both years. Conversely, the “*N*” value of 31 is bolded for 1993, which had more mass shootings than any other year during the 43-year period. Therefore, not surprisingly, 1993 had the highest rate (12.02 per 100 million), whereas 1985 had the lowest rate (3.77 per 100 million). The average mass shooting rate for the 1976–2018 period was 7.26.

When we look at trends in the mass shooting rate over time, we see the highest rates were generally observed during the 1990s. The highest 3-year average (11.20) was 1991–1993, the highest 5-year average (9.72) was 1989–1993, and the 1990–1999 and 1991–2000 periods tied for the highest 10-year average (8.17). The lowest rates, on the other hand, were generally observed during the 1980s. For example, the 1985–1987 and 1984–1988 periods had the lowest 3-year and 5-year averages, respectively. It is worth noting, however, that the 1996–2005 period had the lowest 10-year average, which aligns with broader trends observed for crime and violence in the United States. This finding is similar to those from prior research that demonstrated the trends in the per capita prevalence of mass murder over the 1900–1999 period generally mirrored those for homicides in general (Duwe, 2004).

The data on the severity of mass shootings show 4,203 victims were killed, an average of 98 per year, whereas the total number of victims shot was 6,168, an annual average of 143. The average annual rate of victims killed per 100 million over the 1976–2018 period was 35.87, and the average annual rate of total victims shot was 51.18.

The trend data reveal the highest rates of victims killed were generally in the early 1990s, whereas the highest rates of victims shot have been observed most recently. The highest annual rate of victims killed was in 1991, and the 1991–1993 and 1989–1993 periods had the highest 3- and 5-year averages. The 2008–2017 period had the highest 10-year average, which is more consistent with trend data on the number of victims shot.

As a result of the magnitude of the Las Vegas massacre, 2017 had the greatest number of victims shot and the highest annual rate for this measure. Moreover, the 2015–2017 period had the highest 3-year average, whereas the most recent 5- and 10-year periods had the highest averages. In contrast, the lowest 3-year averages for victims killed and shot were observed in the late 1970s. The lowest 5- and 10-year averages for victims killed and shot were found in the late 1990s and early 2000s.

5 | TRENDS IN THE PREVALENCE AND SEVERITY OF MASS PUBLIC SHOOTINGS

As shown in Table 2, 158 mass public shootings occurred between 1976 and 2018, which amounts to an average of nearly 4 per year and an annual rate of 1.32 per 100 million. Except for 1979, at least one mass public shooting occurred each year during the 43-year period. As such, 1979 had the lowest annual rate. There were 3 years (1993, 1999, and 2012) in which seven mass public shootings took place in the United States. With 10 incidents, however, 2018 had the highest annual rate (3.07).

TABLE 1 Trends in the prevalence and severity of mass shootings, 1976–2018

Year	Incidence				Victims Killed				Victims Shot						
	N	Rate	3-Yr	5-Yr	10-Yr	N	Rate	3-Yr	5-Yr	10-Yr	N	Rate	3-Yr	5-Yr	10-Yr
1976	17	7.92				76	35.40				79	36.80			
1977	19	8.78				85	39.29				106	49.00			
1978	10	4.59	7.10			44	20.18	31.62			44	20.18	35.33		
1979	<u>9</u>	4.09	5.82			39	17.72	<u>25.73</u>			39	17.72	<u>28.97</u>		
1980	23	10.21	6.29	7.12		96	42.60	26.83	31.04		113	50.14	29.35	34.77	
1981	17	7.42	7.24	7.02		79	34.48	31.60	30.85		104	45.39	37.75	36.49	
1982	26	11.23	9.62	7.51		131	56.58	44.55	34.31		142	61.33	52.29	38.95	
1983	15	6.41	8.35	7.87		76	32.48	41.18	36.77		83	35.47	47.40	42.01	
1984	18	7.62	8.42	8.58		104	44.04	44.37	42.04		137	58.01	51.61	50.07	
1985	<u>9</u>	<u>3.77</u>	5.93	7.29	7.20	<u>37</u>	<u>15.50</u>	30.67	36.61	33.83	<u>38</u>	<u>15.92</u>	36.47	43.22	39.00
1986	15	6.25	5.88	7.06	7.04	76	31.65	30.40	36.05	33.45	86	35.81	36.58	41.31	38.90
1987	17	6.98	<u>5.67</u>	6.21	6.86	134	55.05	34.07	35.74	35.03	153	62.86	38.20	41.61	40.28
1988	14	5.70	6.31	<u>6.06</u>	6.97	60	24.41	37.04	34.13	35.45	76	30.92	43.20	40.70	41.36
1989	21	8.46	7.05	6.23	7.40	94	37.87	39.11	32.90	37.47	143	57.61	50.46	40.62	45.35
1990	16	6.43	6.86	6.76	7.03	70	28.15	30.14	35.42	36.02	81	32.57	40.36	43.95	43.59
1991	30	11.90	8.93	7.89	7.47	150	<u>59.48</u>	41.83	40.99	38.52	187	74.15	54.78	51.62	46.47
1992	25	9.80	9.38	8.46	7.33	109	42.73	43.45	38.53	37.14	141	55.28	54.00	50.10	45.86
1993	<u>31</u>	<u>12.02</u>	<u>11.2</u>	<u>9.72</u>	7.89	144	55.83	<u>52.68</u>	<u>44.81</u>	39.47	187	72.51	67.31	58.42	49.56
1994	15	5.76	9.19	9.18	7.71	62	23.81	40.79	42.00	37.45	92	35.34	54.37	53.97	47.30
1995	20	7.61	8.46	9.42	8.09	91	34.63	38.09	43.30	39.36	103	39.20	49.01	55.30	49.62
1996	16	6.03	6.47	8.25	8.07	69	26.01	28.15	36.60	38.80	78	29.40	34.65	46.34	48.98
1997	18	6.73	6.79	7.63	8.04	76	28.40	29.68	33.74	36.13	89	33.25	33.95	41.94	46.02
1998	17	6.29	6.35	6.48	8.10	74	27.38	27.26	28.05	36.43	110	40.70	34.45	35.58	47.00

(Continues)

TABLE 1 (Continued)

Year	Incidence				Victims Killed				Victims Shot						
	N	Rate	3-Yr	5-Yr	10-Yr	N	Rate	3-Yr	5-Yr	10-Yr	N	Rate	3-Yr	5-Yr	10-Yr
1999	25	9.17	7.39	7.17	8.17	132	48.41	34.73	32.96	37.48	190	69.68	47.88	42.45	48.21
2000	18	6.40	7.28	6.92	8.17	86	30.56	35.45	32.15	37.72	94	33.40	47.92	41.29	48.29
2001	13	4.56	6.71	6.63	7.44	53	18.58	32.51	30.66	33.63	60	21.03	41.37	39.61	42.98
2002	22	7.64	6.20	6.81	7.22	97	33.68	27.61	31.72	32.73	107	37.16	30.53	40.39	41.17
2003	29	9.97	7.39	7.55	7.02	125	42.99	31.75	34.84	31.44	154	52.96	37.05	42.84	39.21
2004	15	5.11	7.57	6.73	6.95	69	23.50	33.39	29.86	31.41	80	27.24	39.12	34.36	38.40
2005	16	5.40	6.83	6.53	6.73	76	25.63	30.71	28.87	30.51	90	30.35	36.85	33.75	37.52
2006	22	7.35	5.95	7.09	6.86	103	34.40	27.84	32.04	31.35	112	37.41	31.67	37.02	38.32
2007	19	6.30	6.35	6.82	6.82	116	38.46	32.83	33.00	32.36	151	50.06	39.27	39.61	40.00
2008	26	8.55	7.40	6.54	7.04	119	39.14	37.33	32.23	33.53	147	48.35	45.27	38.68	40.76
2009	24	7.82	7.56	7.08	6.91	132	43.00	40.20	36.13	32.99	181	58.96	52.45	45.03	39.69
2010	17	5.50	7.29	7.10	6.82	82	26.51	36.21	36.30	32.59	101	32.65	46.65	45.48	39.62
2011	24	7.70	7.01	7.17	7.13	115	36.91	35.47	36.80	34.42	152	48.78	46.80	47.76	42.39
2012	20	6.37	6.52	7.19	7.01	122	38.86	34.09	36.88	34.94	195	62.12	47.85	50.17	44.89
2013	24	7.59	7.22	7.00	6.77	112	35.43	37.07	36.14	34.18	132	41.76	50.89	48.85	43.77
2014	20	6.27	6.75	6.69	6.88	91	28.54	34.28	33.25	34.69	113	35.44	46.44	44.15	44.59
2015	24	7.47	7.11	7.11	7.08	133	41.39	35.12	36.22	36.26	193	60.06	45.75	49.63	47.56
2016	25	7.72	7.15	7.15	7.08	162	50.00	39.98	38.84	37.82	242	74.69	56.73	54.81	51.29
2017	23	7.09	7.43	7.43	7.23	180	55.50	48.96	42.17	39.53	1,081	333.3	156.0	109.1	79.61
2018	21	6.44	7.08	7.00	7.00	122	37.42	47.64	42.57	39.36	182	55.83	154.6	111.9	80.36
Total	845					4,203					6,168				
Avg.	19.65	7.26	7.26	7.29	7.28	97.74	35.87	35.67	35.58	35.40	143.44	51.18	49.06	47.28	45.82

Note. Highest values were bolded; lowest values were bolded and underlined.

TABLE 2 Trends in the prevalence and severity of mass public shootings, 1976–2018

Year	Incidence				Victims Killed				Victims Shot						
	N	Rate	3-Yr	5-Yr	10-Yr	N	Rate	3-Yr	5-Yr	10-Yr	N	Rate	3-Yr	5-Yr	10-Yr
1976	1	0.47				7	3.26				9	4.19			
1977	3	1.39				18	8.32				24	11.09			
1978	1	0.46	0.77			4	1.83	4.47			4	1.83	5.71		
1979	<u>0</u>	<u>0.00</u>	0.62			<u>0</u>	<u>0.00</u>	3.38			<u>0</u>	<u>0.00</u>	<u>4.31</u>		
1980	4	1.78	0.74	0.82		18	7.99	<u>3.27</u>	4.28		33	14.64	5.49	<u>6.35</u>	
1981	3	1.31	1.03	0.99		14	6.11	4.70	4.85		36	15.71	10.12	8.66	
1982	6	2.59	1.89	1.23		34	14.69	9.60	6.13		41	17.70	16.02	9.98	
1983	2	0.85	1.59	1.31		12	5.13	8.65	6.78		14	5.98	13.13	10.81	
1984	5	2.12	1.85	1.73		42	17.78	12.54	10.34		66	27.95	17.21	16.40	
1985	1	0.42	1.13	1.46	1.14	4	1.68	8.20	9.08	6.68	5	2.09	12.01	13.89	10.12
1986	1	0.42	0.98	1.28	1.13	14	5.83	8.43	9.02	6.94	20	8.33	12.79	12.41	10.53
1987	1	0.41	<u>0.42</u>	0.84	1.04	6	2.47	3.32	6.58	6.35	16	6.57	5.67	10.19	<u>10.08</u>
1988	4	1.63	0.82	1.00	1.15	57	23.19	10.49	10.19	8.49	69	28.07	14.32	14.60	12.71
1989	2	0.81	0.95	0.74	1.23	13	5.24	10.30	7.68	9.01	56	22.56	19.07	13.53	14.96
1990	1	0.40	0.95	<u>0.73</u>	1.10	9	3.62	10.68	8.07	8.57	13	5.23	18.62	14.15	14.02
1991	5	1.98	1.06	1.05	1.16	40	15.86	8.24	10.07	9.55	74	29.34	19.04	18.35	15.38
1992	3	1.18	1.19	1.20	<u>1.02</u>	14	5.49	8.32	10.68	8.63	25	9.80	14.79	19.00	14.59
1993	7	2.71	1.96	1.42	1.21	35	13.57	11.64	8.76	9.47	73	28.31	22.48	19.05	16.83
1994	1	0.38	1.42	1.33	1.03	4	1.54	6.87	8.02	7.85	27	10.37	16.16	16.61	15.07
1995	3	1.14	1.41	1.48	1.11	14	5.33	6.81	8.36	8.21	18	6.85	15.18	16.93	15.54
1996	2	0.75	0.76	1.23	1.14	10	3.77	3.55	5.94	8.01	14	5.28	7.50	12.12	15.24
1997	3	1.12	1.01	1.22	1.21	12	4.48	4.53	5.74	8.21	21	7.85	6.66	11.73	15.37
1998	3	1.11	0.99	0.90	1.16	13	4.81	4.35	<u>3.99</u>	6.37	48	17.76	10.29	9.62	14.33

(Continues)

TABLE 2 (Continued)

Year	Incidence				Victims Killed				Victims Shot						
	N	Rate	3-Yr	5-Yr	10-Yr	N	Rate	3-Yr	5-Yr	10-Yr	N	Rate	3-Yr	5-Yr	10-Yr
1999	7	2.57	1.60	1.34	1.34	52	19.07	9.45	7.49	7.75	105	38.51	21.37	15.25	15.93
2000	3	1.07	1.58	1.32	1.40	17	6.04	9.97	7.64	8.00	18	6.40	20.89	15.16	16.05
2001	4	1.40	1.68	1.45	1.34	17	5.96	10.36	8.07	7.01	26	9.11	18.00	15.92	14.02
2002	1	0.35	0.94	1.30	1.26	4	1.39	4.46	7.45	6.60	6	2.08	5.86	14.77	13.25
2003	4	1.38	1.04	1.35	1.13	19	6.53	4.63	7.80	<u>5.89</u>	20	6.88	6.02	12.60	11.11
2004	3	1.02	0.91	1.04	1.19	15	5.11	4.34	5.01	6.25	26	8.86	5.94	6.67	10.96
2005	4	1.35	1.25	1.10	1.21	24	8.09	6.58	5.42	6.53	35	11.80	9.18	7.75	11.45
2006	5	1.67	1.35	1.15	1.30	27	9.02	7.41	6.03	7.05	36	12.02	10.90	8.33	12.13
2007	6	1.99	1.67	1.48	1.39	57	18.90	12.00	9.53	8.49	87	28.84	17.56	13.68	14.23
2008	6	1.97	1.88	1.60	1.48	30	9.87	12.59	10.20	9.00	59	19.40	20.09	16.19	14.39
2009	6	1.95	1.97	1.79	1.41	46	14.99	14.58	12.17	8.59	84	27.36	25.20	19.89	13.28
2010	4	1.29	1.74	1.78	1.44	20	6.47	10.44	11.85	8.63	31	10.02	18.93	19.53	13.64
2011	4	1.28	1.51	1.70	1.43	23	7.38	9.61	11.52	8.77	49	15.73	17.70	20.27	14.30
2012	7	2.23	1.60	1.75	1.61	67	21.34	11.73	12.01	10.77	148	47.14	24.30	23.93	18.81
2013	4	1.27	1.59	1.61	1.60	27	8.54	12.42	11.74	10.97	33	10.44	24.43	22.14	19.16
2014	3	0.94	1.48	1.40	1.59	14	4.39	11.42	9.62	10.90	33	10.35	22.64	18.74	19.31
2015	4	1.24	1.15	1.39	1.58	37	11.51	8.15	10.63	11.24	73	22.72	14.50	21.27	20.40
2016	4	1.23	1.14	1.38	1.54	65	20.06	11.99	13.17	12.35	131	40.43	24.50	26.22	23.24
2017	7	2.16	1.55	1.37	1.56	106	32.68	21.42	15.44	13.72	1,001	308.7	123.9	78.52	51.22
2018	10	3.07	2.15	1.73	1.67	78	23.93	25.56	18.51	15.13	133	40.80	130.0	84.59	53.36
Total	158					1,139					2,840				
Avg.	3.67	1.32	1.30	1.31	1.30	26.49	9.38	9.06	8.87	8.71	66.05	22.44	20.21	18.35	16.91

Note. Highest values were bolded; lowest values were bolded and underlined.

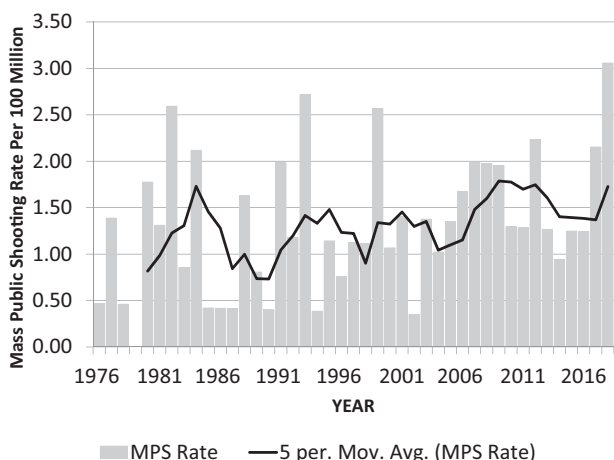


FIGURE 1 Mass public shooting incident rate per 100 Million, 1976–2018

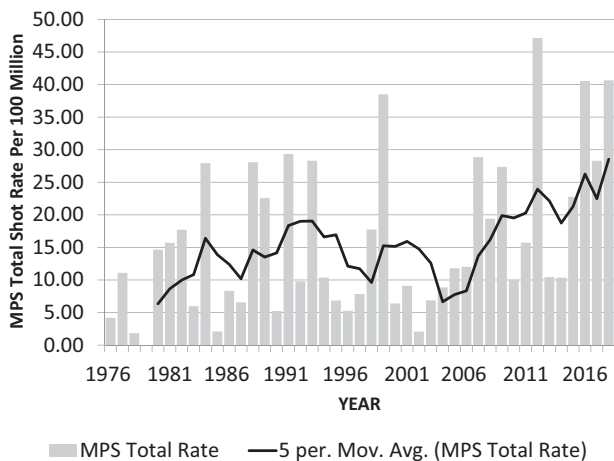


FIGURE 2 Mass public shooting severity rate per 100 million, 1976–2018

The trend data indicate the latter 1980s had lower average rates of mass public shootings. For example, the 1985–1987 period had the lowest 3-year average (.42), the 1986–1990 period had the lowest 5-year average (.73), and the 1983–1992 period had the lowest 10-year average (1.02). As shown in Figure 1, which includes the 5-year moving average, the highest mass public shooting rates have, to a large extent, been observed most recently. Although the 2005–2009 period had the highest 5-year average (1.79), the most recent 3- and 10-year periods had the highest average rates.

Much like the incidence data, the trend data for the number of victims killed and shot further reveal that mass public shootings have recently increased in severity (see Figure 2). A total of 2,840 victims were shot in the 158 mass public shootings, of whom 1,139 were killed. Again, as a result in no small part of the Las Vegas massacre, 2017 had the largest number of victims killed (106) and shot (1,001). As a result, 2017 also had the highest rate of victims killed (32.68) and shot (308.70). Likewise, the most recent 3-year (2016–2018), 5-year (2014–2018), and 10-year (2009–2018) periods had the highest average rates for victims killed and shot.

6 | PATTERNS OF MASS PUBLIC SHOOTINGS

As mentioned earlier, the carnage in mass public shootings is greater than it is for mass killings in general. For example, the average number of victims killed and wounded in 909 mass murders that occurred in the United States from 1900 to 1999 was 5.4 and 4.0, respectively (Duwe, 2007). In Table 3, which presents descriptive statistics on the 158 mass public shootings, the average number of victims killed was 7.21 and the average number wounded was 10.77.

Like those who commit familicide, mass public shooters almost always act alone. Mass public shootings, like the ones committed at Columbine and San Bernardino, are rare. Of the 158 cases, 153 (97%) were carried out by a lone offender. With the exception of three incidents, all of which have occurred since 2006, mass public shooters have been male. A little more than three fifths have been non-Hispanic White offenders, whereas close to one fifth have been African American. The average age among mass public shooters is 35. More than 80% were younger than age 45 at the time of the attack.

School shootings have captured much of the recent attention focused on mass shootings. As shown in Table 3, a little more than one tenth of mass public shootings could be classified as school shootings. Part of the reason for the low percentage of school shootings among mass public shootings in general is a result of the fact that few occurred prior to the late 1990s. Historically, workplace shootings have been more prevalent, accounting for 27% of the cases. The remaining 61% fall into the “other” category, which includes cases such as the 2016 Orlando massacre or the 2017 Las Vegas attack.

Although not all mass public shooters have a history of mental illness, a little more than 60% of the mass public shooters had been either diagnosed with a mental disorder or demonstrated signs of serious mental illness prior to the attack. This rate is not only higher than what has been observed for mass murderers in general (Duwe, 2016; Fox & Fridel, 2016; Taylor, 2018), but it is also consistent with *Mother Jones’s* initial reporting in which it was found that 61% of the 62 cases in the sample had displayed signs of possible mental health problems. The rate for mass public shooters is much higher than what has been reported for the population in general. It is more than three times higher than the 12-month prevalence rate of any mental illness among adults and about 15 times higher than that for serious mental illness (Substance Abuse and Mental Health Services Administration, 2013).

Of the mentally ill mass public shooters, approximately one third sought or received mental health care prior to the attack. As shown in Table 3, paranoid schizophrenia has been the most common mental disorder followed by mood disorders. Perhaps as a consequence of the high rate of mental illness and, more narrowly, paranoid schizophrenia, mass public shooters often believe they have been persecuted. For most mass public shooters, the attack is an act of vengeance against those whom the shooter holds responsible for his or her perceived mistreatment. Because mass public shooters generally feel as though others are out to get them, it is perhaps unsurprising that they are often distrustful and socially isolated, which may help explain why they are frequently characterized as “loners” (Duwe, 2007).

Contrary to popular perception that these offenders “just snap,” mass public shootings are usually preceded by a great deal of planning and deliberation. As mass public shooters ruminate over the idea of exacting revenge and begin devising plans for their attack, they sometimes communicate threats either verbally or in writing. As shown in Table 3, at least 37% made some form of violent threats beforehand. Even though mass public shooters often spend weeks, months, or years contemplating the attack, approximately two thirds experience a traumatic event—typically the loss of a job or an important relationship—that ultimately precipitates the violence. When mass public shooters carry

TABLE 3 Description of mass public shootings, 1976–2018

Metrics		
Average Number Killed	7.21	
Average Number Wounded	10.77	
<u>Number of Offenders</u>	<u>Number</u>	<u>Percent</u>
Single Offender	153	96.8
Multiple Offenders	5	3.2
<u>Type</u>		
School	18	11.4
Workplace	43	27.2
Other	97	61.4
<u>Gender</u>		
Male	155	98.1
Female	3	1.9
<u>Race/Ethnicity</u>		
Non-Hispanic White	97	61.4
African American	30	19.0
American Indian	3	1.9
Asian	11	7.0
Hispanic	15	9.5
Missing/Unknown	2	1.3
<u>Age Categories</u>		
Younger than 25	41	25.9
25–34	43	27.2
35–44	46	29.1
45–54	17	10.8
55 and older	9	5.7
Missing	2	1.3
<u>Mental Health/Illness</u>		
Yes	97	61.4
Paranoid Schizophrenia	55	34.8
Mood Disorder (Depression)	34	21.5
Other Mental Illness	8	5.1
Unknown	61	38.6
<u>Precipitating Event</u>		
Yes	103	65.2
Unknown	55	34.8
<u>Threats (Verbal or Written)</u>		
Yes	59	37.3
No or unknown	99	62.7
<u>Outcome</u>		
Arrested	66	42.9
Suicide	66	41.8
Killed by Police/Civilians	24	15.2
Unknown	2	1.3
<i>Total N</i>	158	

out the attack, they are more likely to target strangers compared with other mass murderers (Duwe, 2007).

After the shootings, 57% of mass public shooters committed suicide or forced others (mostly police) to kill them. The rate of suicidal behavior among mass public shooters is nearly double the rate for other mass killers and more than 10 times higher than that observed for homicide offenders in general (Duwe, 2007). The high suicide rate may be a result of the fact that many mass public shooters are tormented individuals who want to put an end to their lives of pain and misery but only after evening the score with those who were, in their minds, the sources of that pain and misery.

Given that mass public shooters are often suicidal, the recent rise in the incidence of these cases follows a broader trend of growth in the suicide rate in the United States. After bottoming out with a rate (per 100,000) of 10.4 in 2000, the rate climbed to 14.0 in 2017, with much of the growth taking place since the late 2000s (Hedegaard, Curtin, & Warner, 2017). The rate (57%) at which mass public shooters commit suicide or force others—usually the police—to kill them at the scene of the attack also dovetails with the high rate of mental disorders (61%) discussed earlier. The findings reported in the literature have consistently demonstrated an association between mental disorders and suicide (Arsenault-Lapierre, Kim, & Turecki, 2004). Even though mental illness is not a cause of suicide, it is widely recognized as a risk factor. Therefore, the same may be true for mass public shootings—a mental disorder may not have a causal relationship with this specific form of mass violence, but it could elevate the risk.

7 | CONCLUSION

After the mass murder problem receded during the late 1990s, the mass shooting problem has emerged over the last decade. Despite differences in how each one has been socially constructed, both have been driven by mass public shootings, which are rare within the context of either mass shootings or, more broadly, mass murder. When mass murder was constructed as a new crime problem, the height of claimsmaking activity was during the late 1980s and early 1990s (Duwe, 2007), which coincides with what had been—until recently—the highest incidence rates observed for mass public shootings since the mid-1970s. Likewise, the more recent mass shooting problem has arisen during a time in which the incidence and severity of mass public shootings have been on the rise.

The growing number of highly lethal mass public shootings raises several important questions. Perhaps most notably, why have they become more deadly since the mid-2000s? Is this effect a result of the expiration of the federal assault weapons ban in 2004? Or is it a result of other changes in gun policy? Would greater access to mental health care have an impact on the incidence of mass public shootings or mass killings in general? To what extent does the widespread media coverage incite, or inspire, others to carry out attacks?

As the public debate continues over what can be done to reduce the incidence and severity of mass public shootings, it is worth reiterating that this type of violence is, fortunately, rare. Emphasizing their rarity does not diminish the enormous impact they have on perceptions of public safety. The infrequency with which they occur, however, makes it challenging to predict with accuracy who will commit a mass public shooting or to develop policies designed to reduce their incidence or severity. Therefore, as Fox and DeLateur (2014) suggested, it may be unrealistic to assume that policy proposals targeting mass shootings in particular would, individually or collectively, prevent a catastrophic attack from ever taking place in the future. Rather than crafting measures to attempt to address mass public shootings, it may be more effective to focus on strategies that have shown promise in reducing violence in general.

ENDNOTES

- ¹ Since 1976, more than 1,000 mass murders have occurred in the United States, averaging close to 30 incidents per year. During the same period of time in the United States, there have been, on average, a little more than 14,000 homicides annually. Mass murders thus account for only .2% of all homicides annually (Duwe, 2016).
- ² The extent of the underreporting problem for the overall Gun Violence Archive (GVA) data is likely worse than 30%. The GVA data follow a heavy-tail distribution in which most of the incidents have smaller numbers of victims, whereas only 5% had four or more fatal victims. Previous research findings have shown that the number of victims killed has a significant positive effect on the newsworthiness of a homicide (Duwe, 2000; Johnstone, Hawkins, & Michener, 1994; Wilbanks, 1984). What this means is that cases falling in the flat tail of the distribution (i.e., those with four or more fatal victims) are more likely to get reported by the news media than are those with fewer fatal (or no fatal) victims, which make up the bulk of the cases in the GVA data set. Therefore, if the GVA data missed 30% of the most newsworthy cases, the percentage of missing cases is likely higher for the less severe shootings either because they received minimal news coverage or were never reported at all.

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