



Examining Trends, Impacts, Drivers, and Policy Implications of Active School Shooter Incidents: A Research Overview

By Mollie Mercado

Abstract

In the context of alarming trends in school shootings and mass shootings experienced today, school districts, practitioners and policymakers need to adapt to combat this evolving threat. To understand the gaps in existing research, it is necessary to examine the trends, drivers, impacts, and policy implications of active shooter incidents. This essay offers a review of recently published academic research on active shooter incidents, with a focus on school shootings. The first section highlights publications on drivers and impacts of active shooter incidents. The second section reviews some of the latest scholarly evaluations of policies put in place to counter school shootings and mass shootings broadly.

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Active School Shooting Trends

Active school shooting incidents remain a major threat to homeland security and public safety in the United States. The term "active school shooter" is defined as the act of an individual's firearm being brandished, fired, or when a bullet hits school property for any reason regardless of the number of victims, time of day, day of week, or motivation.¹ During the first ever recorded attack in 1767, four Lenape American Indian men entered a school in present day Greencastle, Pennsylvania, which resulted in eleven deaths and two injured.² 255 years later, the number of school shootings has exploded. In 2022 alone, there were 302 school shootings, a 90.40% increase from 2000.³ Since 1970, over 2,232 active shooter incidents have occurred within a K-12 school environment and disturbingly, over 1,554 K-12 school shootings have been recorded since 2000.⁴ The tragic school shooting incident that set a foundational need for stricter school security is the 1999 Columbine High School shooting which killed thirteen people and injured twenty-four others.⁵ Since 2020, a total of 681 school shootings have been recorded which marked the highest increase in school shooting incidents recorded in United States history.⁶ Though statistically rare in occurrence, more than 331,000 students have fallen victim to gun violence at school since Columbine.⁷ On average, the United States has experienced approximately forty-one school-targeted shootings every year since 1970.⁸

Sadly, active shooter incidents in American schools are part of a ubiquitous threat associated with mass shooting and gun violence. Mass shooting is defined as four or more individuals shot and/or killed at the same time and place not including the shooter.⁹ In 2022 alone (as of December 31), there were 648 recorded mass shootings in the U.S.¹⁰ This represents a 57.87% increase compared to 2014. Current trends in the number of casualties are also alarming. In 2022, a total of 1,672 children and teens (age 0-17) were killed, and 4,476 children and teens

(age 0-17) were injured during mass shooting attacks between January 1 and December 31.¹¹ These casualty numbers represent a 50.50% increase compared to 2014. In comparative terms, these trends make the United States an outlier among developed countries. Australia, for instance, recorded twelve mass shooting incidents from 1981 to 2013 while the U.S. recorded seventy-three incidents over the same period.¹² In Scotland, 682 cases were recorded over a twelve-year span (2010-2022) in comparison to 599 cases in a single year (2022) in the United States.¹³ These comparative differences further highlight the magnitude of mass shooting rates in the U.S. This essay aims to examine the trends, impacts, drivers, and policy implications of active shooters while offering recommendations for prevention practices.

Impacts of Active Shooter Incidents

Beyond the detrimental impacts, existing research has provided evidence showing that school shootings produce additional devastating consequences for American society. For instance, the trauma endured following an event can impact the economic outcomes of students. A recent study found that students exposed to incidents are 6.3 percent less likely to be employed and will lose approximately \$115,550 in their total lifetime income.¹⁴ From a social standpoint, the intensity of active shooter drills in schools impacts the psychological well-being of students, faculty, and staff. As these drills increasingly seek to mimic real-life scenarios, participants are exposed to high risks of stress and anxiety. Following a school shooter drill, a study found, students and faculty might respectively see a forty-two and thirty-nine percent increase in stress and anxiety and depression.¹⁵

Drivers of Active School Shooters

Recent scholarship on the drivers of school shootings and of the broader issue of mass shootings focus on the psychological, socioeconomic, and structural factors that motivate violent behavior and influence the extent to which perpetrators commit violent acts. For instance, a group of researchers recently examined the relationship between adverse childhood experiences (ACEs) and violent behavior displayed by current students.¹⁶ Using the 2013 Minnesota Student Survey, they examined household and family characteristics, with a focus on reported ACEs and negative household and family exposures, to see if exposure to ACEs caused an increase in school violence. They found that fifteen percent of students reported verbal abuse, thirteen percent reported physical abuse, eleven percent reported parental substance abuse, seven percent reported parental intimate partner violence, six percent reported an incarcerated parent, and three percent reported sexual abuse. Furthermore, subgroup participants reported thirty-nine percent of victims, forty percent of perpetrators, and sixty-two percent of perpetrator-victims reported one or more household/family ACE. Out of this subgroup, the rate of on-campus violence increased significantly.

Other recent studies have examined risk factors such as social capital, social ties within the community, income inequality, socioeconomic status, and others to better understand the correlation of risk factors and mass shootings in general. In a study published in 2019, Daniel

Kim used geolocated gun homicide incident data and U.S. census data from 2010 to 2015 and found that individuals living alone in poverty-stricken communities with little to no social ties to the community are correlated with a twenty-seven percent increase in gun homicides. Additionally, the increase in income inequality and social mobility were linked to a fifteen percent increase in firearm related mass shootings. A decrease in these social determinants lowered the risk of gun related homicides by thirty-two percent. The lack of accessible resources and funding in welfare and education over time has contributed to an increase in mass shooting incidents, especially in young children and adults.¹⁷

In a recent investigation of the link between income inequality and mass shootings, Roy Kwon and Joseph Cabrera analyzed data from the U.S. Census, FBI, and media outlets from 1990 to 2015 across a sample of 3,144 counties in the United States. They found that counties that experienced a decrease in income inequality also experienced a decrease in mass shootings at a rate of six per one thousand counties. Additionally, the researchers found that the increase in income inequality leads to anger and violence, which directly influences the risks of mass shootings. On the latter, counties that experienced an increase in income inequality also experienced an increase in mass shootings at a rate of thirty per one thousand counties.¹⁸

Recent studies on mass shootings have also examined the role of fear factors. For instance, Maurizio Porfiri and his colleagues were interested in investigating whether individuals purchase firearms for self-protection because they fear being the next victim of a mass shooting. The researchers examined the correlation of mass shooting fear factors and firearm acquisitions at the state level. In a state-level study that relied on databases from the Washington Post, Mother Jones, and FBI reports, they found that media coverage increased fear associated with the lack of firearm background checks, especially in Connecticut and Hawaii, as no background checks were reported for an extended period which in turn increased firearm purchases for self-protection.¹⁹

Policy Response and Implications to School Shootings

Research has revolved around the Safe School Initiative. The result of a collaborative effort launched by the U.S. Secret Service and the U.S. Department of Education in June 1999 following the attack at Columbine High School, the Safe School Initiative sought to examine school shooting incidents to understand the thinking, planning, and other behaviors engaged in by perpetrators.²⁰ Since Bryan Vossekuil and their colleagues' publication of the initial report in 2002, a Safe School Initiative Act has been adopted in numerous local and state jurisdictions in the hopes of providing a safer school environment for all students and faculty by implementing mental health counseling and resources within school districts.²¹ To support the overarching goal of the Safe School Initiative Act, threat assessments, which provide information regarding the extent of which a student poses a risk to themselves or others, have slowly been adopted across states.²² Threat assessments serve as a mitigation tool by identifying leakage and the ability to accurately intercept prior to an incident. As the debate continues as to whether threat assessments should include leakage and mental health together, policy and program implementation have both been vastly understudied and underfunded.

The initial study explored pre-attack behaviors and communications associated with 37 incidents involving 41 perpetrators that occurred in the United States from 1974 through 2000. The findings indicate that, in most of the cases, other individuals (classmates, teachers, friends, parents) reported a noticeable change in perpetrator behavior and even had knowledge that an attack may occur. Additionally, seventy-eight percent of the perpetrators had never received a mental health evaluation despite having a history of exhibiting mental health symptoms and behaviors.²³

The 2002 Safe School Initiative report brought to light two factors that are still being investigated by academic researchers today. Findings of earlier studies showed that eighty-one percent of cases involved at least one person knowledgeable of the thinking or planning of a school attack by another person.²⁴ More recent studies have corroborated these results. Researchers Adam Lankford, Krista Adkins, and Eric Madfis for example, found that fifty-nine percent of cases involved two or more people having knowledge of the thinking and planning of a school attack.²⁵ When examining forty-one reported cases of targeted school violence that occurred in K-12 schools in the U.S. from 2008 to 2017, a 2019 study by the U.S. Secret Service National Threat Assessment Center (NTAC) found that all cases examined identified some form of leakage either in violent behavior or through verbal communication.²⁶

Other studies seem to confirm the idea that proper understanding and management of the leakage phenomenon could help prevent school tragedies. All these studies commonly point to the critical role of leakage in relation to efficient intelligence analysis within local law enforcement agencies. In their study of *Active Shooter Incidents in the U.S. between 2000 and 2013*, researchers James Silver, Andre Simons, and Sarah Craun found that out of the thirty recorded active shooter cases in 2017, each perpetrator displayed four to five concerning violent behaviors that were noticeable to others over time, thus leaking their violent intent. In terms of reporting behaviors to law enforcement, the researchers also found responses included fifty-four percent of the population not reporting and forty-one percent reporting behaviors to law enforcement.²⁷

The ongoing conversations on the role of leakage suggest that several challenges must be overcome before an instance of leakage can be successfully turned into a prevention tool. First, third parties (e.g., parents, classmates, teachers, and school administrators) must accurately identify cues leaked by the perpetrators. It is thus important, from research and policy standpoints, to shed light on the drivers of and barriers to accurate identification of leaked cues. It should be noted that just because forty-one percent reported violent behaviors, it does not mean the leakage was considered or mitigated against by local law enforcement. While tying together active shooters and the presence of leakage, this problem area could greatly benefit from understanding how reporting leakage in the context of human behavior impacts intelligence gathering operations at the local level and the ability to mitigate against a foreshadowed event.

Both studies showed that leakage clues were not intercepted due to lack of training, funding, and accountability. In opposition to the supporting arguments, researcher Linda McCash found that school districts in Florida were not in favor of implementing school-based mental health programs due to key challenges such as difficulty determining organizational placement of the

program, authority and accountability, organizational support, ongoing funding to maintain the program, and unclear program procedures, thus inferring that there was no governmental guidance on how to adopt and maintain this critical policy to its fullest capability. Aside from the overall difficulty of maintaining such programs, other researchers have questioned the accuracy of threat assessments.²⁸ Contrasting arguments expressed at the National Summit on K-12 School Safety and Security included the likelihood of targeting groups that are not actual school threats and missing those who fall under the high-risk category. Wrongly targeted groups include children of color, children with disabilities, and low-income families and households. Safety directors who attended the summit also argued that threat assessments should include a whole child approach rather than one that is structured around a mental health emphasis.²⁹ Threat assessments should not become profiling tools to avoid the potential increase within the school to prison pipeline. An apparent gap within the study of threat assessments includes the lack of data on human behavior and the impacts of leakage. Much of the previous research includes studies pertaining to human perception but does not answer the questions on human behavior in terms of reporting crime, effectively reacting to the threat, and taking a more proactive approach in deterring school shooting events when foreshadowed clues are available.

Some of the research on policy responses to active school shooter incidents have revolved around the provisions of HIPAA's Privacy Rule. If done diligently, school threat assessments could mitigate against the risk and probability of a school shooter event. Law enforcement organizations can utilize school threat assessments as a proactive prevention tool that models data in real world settings.³⁰ Research has questioned whether mental health information should be included in assessments but it is presently considered a separate factor.

As threat assessment teams strive toward accurately identifying leakage, sharing information, and mitigating against potential threats, HIPAA's Privacy Rule sets boundaries on under what circumstances protected health information, specifically mental health records, is disclosed to law enforcement. The term "leakage," is defined as an instance when a perpetrator of school shooting, intentionally or unintentionally, reveals cues to feelings, thoughts, fantasies, and attitudes through verbal or nonverbal communications that may signal an impending act of violence.³¹ In the case of a high-risk student, the Privacy Rule authorizes defined medical agencies to disclose protected health information to law enforcement officials without written consent when responding to an off-site medical emergency with the purpose of alerting law enforcement about criminal activity. From an ethical standpoint, professionals are only permitted to disclose information to law enforcement when imminent danger is perceived, and the interception would prevent or lessen the posed threat to the individual or to others.³² What appears to be lacking within the policy discussion is understanding the barriers between HIPAA and diverse law enforcement ethical standards that limit what investigations take place, roles within investigations, and jurisdictional capabilities.³³ Key conceptual terms, such as imminent danger and criminal activity, are not clearly defined. As definitions may vary across organizations, the criteria to meet the standards of the definitions become unclear and up to interpretation, which can result in missed opportunities, loss of life, and law enforcement prevention and response failures.

In the context of privacy challenges within school threat assessments, researchers Nicole Jones and Angel Gray utilized a case study approach to identify the ethical and legal challenges faced by law enforcement during the investigatory information gathering process in North Carolina. It should be noted that all identification information was redacted from the case study. While focusing on the case background investigation section, the researchers examined a threat assessment that identified a high-risk male student who leaked written detailed plans of a school shooting at his high school. The student also had a repeat history of extreme violence, aggression, involuntary psychiatric hospitalizations, and substance abuse along with numerous psychiatric diagnoses. While conducting interviews, law enforcement experienced a lack of cooperation amongst hospital staff regarding patient health records during all hospitalizations.³⁴ The researchers found that even though HIPAA's Privacy Rule permits the disclosure of protected health information to law enforcement, the North Carolina General Assembly enacted a statutory provision that made any confidential medical disclosures to law enforcement where information used could prevent or reduce the imminent danger nonmandatory.³⁵ It can be suggested from a legal standpoint, that any information obtained by law enforcement outside the scope of public records was considered in violation of HIPAA's Privacy Rule and North Carolina's statutory provision, due to the student not meeting the hospital criteria for an evaluation or commitment for treatment.³⁶ This highlights why medical disclosures to law enforcement are often underreported, as some hospital staff wanted to report concerning behavior but did not in accordance with the statutory provision. It is unclear how imminent danger was defined as there was a detailed plan, previously identified violent history, and extensive mental illness history.

While the Association of Threat Assessment Professionals (ATAP) provided ethical and practical guidelines to threat assessment teams, they also recognized that ethical standards vary by profession. The researchers found that ethically, that state only permits law enforcement to collect information for their investigation from public records to ensure confidentiality.³⁷ From a law enforcement prevention perspective, it can also be inferred that the ethical and legal challenges combined limited the capabilities of the threat assessment teams' investigatory capabilities.³⁸ A possible explanation for the limited capabilities stems from how broadly written the ATAP's Code of Ethical Conduct is. Broadly defined standards make it unclear what the intended roles of law enforcement are and may be of limited use in making quick-thinking decisions on ethical practices within threat assessments.³⁹ In essence, because threat assessments are a newly adopted school mitigation approach, law enforcement ethical codes have not adapted to reflect the current threat which contributes to the failures seen in prevention and response efforts.

Recommended Prevention Practices

Over the past two decades, a growing body of literature has identified and challenged the overarching failures seen during previous school shooting events. As the focus has shifted towards implementing threat assessments, missed opportunities have accentuated the negative consequences of ineffective information sharing methods, training, and response efforts. Researchers James Fox and Jenna Savage used the Virginia Tech shooting as a case study to

provide recommendations on best prevention practices. The researchers compiled seven recommendations, but only two will be discussed for the purpose of understanding HIPAA, threat assessments, interagency relationships, and crisis communication specifically. In terms of privacy, the researchers recommended that all campus personnel should be trained on HIPAA's Privacy Rule and its functionality before, during, and after school shooting events. Not being trained on the limits and allowances of the Privacy Rule can cause underutilization of critical information received which can carry a significant loss while at the same time, overreaching can reduce trust, and increase unnecessary student profiling and campus litigation. As HIPAA permits disclosures without consent in extreme cases, there is still confusion regarding when to report extreme violent behavior and what criteria must be met to legally override student privacy.⁴⁰ Like the previously mentioned study, there is a lack of defined standards as to what actions constitute exceptions to HIPAA's Privacy Rule.

From a preparedness standpoint, researchers James Fox and Jenna Savage recommended certifying mutual aid agreements with local health agencies and additional key stakeholders to increase resources and response efforts. As there are currently some mental health resources on college campuses, certifying necessary relationships with external agencies would drastically increase the type of mental health resources available and how quickly they can be drawn upon when needed.⁴¹ It has been suggested in research that establishing effective interagency relationships will support the flow of information sharing, and hopefully encourage reporting to law enforcement. Establishing interagency connections will allow for a more cohesive training and exercise practice where the roles of each responding agency are clearly defined.⁴² While the research study could have benefitted from defining what the missed opportunities were in the recommendations, the research still highlights a common gap within HIPAA's Privacy Rule and its impact on school shooter prevention and response efforts.

The research discussed so far has shown the qualitative findings and recommendations in current research but has overlooked the benefit of presenting quantitative data. The researchers offered recommendations from the Virginia Tech shooting but did not clearly define the missed opportunities that influenced the recommendations made.⁴³ For instance, they discussed the need to train campus personnel on HIPAA's Privacy Rule and the exceptions to the policy in imminent situations and to establish interagency relationships with relevant healthcare professionals and external stakeholders but did not discuss the failures noted during the actual event that would have influenced the recommendations provided.⁴⁴ This would have made the literature clearer to the audience which is unfamiliar with the events that took place. As previously mentioned, recommendations were made of seventy percent of the previous reports, but they never provided information on who is included within that seventy percent population.⁴⁵ On a broader scale, research within this sector could greatly benefit from quantitative data. While focusing on the overall limitations, it is important to conduct quantitative studies to understand what drives individuals to report crime (or not) to law enforcement in correlation with HIPAA. This will allow researchers to examine specific drivers, impacts, and policy challenges that influence underreporting which in turn, can clarify the limitations to HIPAA during school shooting threat assessments.

While examining school shooting events, researchers Jaclyn Schildkraut and her colleagues utilized a case study approach to examine the events leading up to the Parkland shooting to identify the challenges and failures experienced. Additionally, they used the Path to Intended Violence Model to illustrate the perpetrator's journey toward violence that foreshadowed the devastating events seen. This model was originally used to assess the behaviors of individuals who had assassinated or were at high-risk of assassinating public figures, but over time, the model found overlapping similarities in pre-attack behaviors by school shooters. The model consists of variables such as grievances, ideation, research, planning, preparation, breaching, and policy implications— all of which are considered factors in school threat assessments.⁴⁶ As various sources were utilized for the case study, the perpetrator's mental health records were not included in accordance with HIPAA, but HIPAA's Privacy Rule was overlooked in terms of the reporting to law enforcement in imminent events prior to the incident. In fact, the model found that approximately thirty people had first-hand knowledge of the violent behavior prior to the shooting but were downplayed as jokes and never followed up on by local or federal law enforcement agencies.⁴⁷ A possible explanation could be due to the bystander effect, in that individuals were not taking responsibility since an abundance of others were aware of the displayed behaviors at the same time, or they feared the potential consequences of reporting and the perpetrator finding out.

To summarize the findings from the model, the researchers found the Parkland perpetrator experienced chronic and prolonged stressors that intertwined with a lack of social support, which exacerbated the effects of the event. In terms of ideation, the perpetrator was leaking suicidal tendencies that date back to his childhood. During the research and planning phase, the perpetrator had the school bell schedule on his phone which showed the times students were in the classroom versus in the hallway changing classes. He also researched combat breathing techniques. Preparation is mostly uniform across school shooting events in that it includes obtaining a firearm(s) and ammunition to carry out the act. In this case the perpetrator used an AR-15 with numerous rounds of ammunition that were purchased over time. Lastly, there was no prior breaching involved, meaning that officials did not find the perpetrator conducting a dry run of the attack.⁴⁸ The summarized findings highlight the substantial evidence that support the value of threat assessments and their ability to identify and mitigate against potential catastrophic events. While applying what has been discussed about school threat assessments and HIPAA's Privacy Rule, it can be presumed that the overall missed opportunity was the nonexistent threat assessment and the lack of reporting from medical professionals to intercept the events that occurred. Given the detailed analysis of events leading up to the school shooting, there is a disconnect between law enforcement and medical professionals. The recommendations offered by researchers James Fox and Jenna Savage can be applied to the Parkland case while focusing on training, education, and interagency relationships. The research did not give reasons to why only HIPAA was applied in terms of confidentiality and not the Privacy Rule, considering the extensive mental health history that was later publicized after the shooting and trial, thus furthering the gap in understanding the drivers and causes of underreporting.

School shootings highlight the impact of chaos on individuals and systems to effectively execute plans. As most school shooting cases to date contained leaked evidence that foreshadowed the incident along with extensive mental illness histories, the abruptness of each case has also identified its negative impact on preparedness, prevention, and response efforts to reduce the number of lives lost. The challenges discussed surrounding HIPAA's Privacy Rule showcase a small portion that contribute to the overarching problem: the unclear understanding of underreporting and the lack of accountability taken due to broadly written policies.

Conclusion

Unfortunately, active school shooting incidents are a unique issue growing rapidly in the United States today. The alarming trends dating back to the Columbine school shooting in 1999, highlighted the significant and impactful increase of such catastrophic events. Examining the drivers and impacts of school shootings provides researchers with a comprehensive discussion of active school shooter incidents and the areas needed to be further explored in future research. Both the Safe School Initiative Act and HIPAA's Privacy Rule were discussed to highlight the successes and failures of current policy enacted to mitigate against the next school shooting incident. Collectively, this research overview provided a review of research and studies that highlight critical components for understanding the active school shooter phenomenon. For instance, school shootings have increased 90.40% from 2000 to 2022.⁴⁹ Research has also examined the impacts of school shootings and found a loss of total income earned over a lifetime, and increased psychological effects such as stress and anxiety. Studies have shown psychological, socioeconomic, structural factors that correlate with increased trends over time. Empirical studies are needed to advance the literature on active school shooters to influence policies to better protect our schools and students.

About the Author

Mollie Mercado is a current doctoral student pursuing her Doctor of Science in Civil Security, Leadership, Management, and Policy at New Jersey City University. Her research focus is on active school shooter training and the cognitive framework of human behavior and reporting leakage to law enforcement to mitigate against future school shootings. Mollie is also a graduate of Purdue University where she received her Master of Science in Homeland Security and Emergency Management. Her capstone research interest included understanding the effectiveness and cost benefits of green mitigation strategies versus structural controls for coastal communities. She may be reached at molliemercado29@gmail.com.

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