

Going Postal: A Comparative Analysis of Workplace Mass Shooters as Insider Threats

By

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Abstract

This research analyzes the overlap of behavioral indicators in workplace mass shooters and insider threats. To do so, it addresses four questions on perpetrator disclosure, signs of being in a crisis or under stress, the outcome for the perpetrator, and the victim count. Multiple bivariate regressions and multivariate regression analyzed data on 190 mass shootings from 1966 to 2022. The results showed that workplace mass shooters were more likely to exhibit behavior that aligns with being in a crisis or under stress before the attack. Additionally, workplace mass shooters have lower victim counts than other mass shooters. Workplace mass shooters are more likely to die at the crime scene but less likely to disclose their plans before the attack. This study and its findings emphasize the importance of including workplace mass shooters in the discussion of insider threats, as it will affect training that could save lives.

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Introduction

In September of 1989, Joseph Wesbecker set out on a deadly mission. He strapped himself with multiple guns and headed for his workplace, a printing plant. He entered the plant, and minutes later, nine people were dead, including himself, with another twelve injured. It took a matter of minutes for this kind of chaos to ensue. Before this horrific day, Wesbecker told multiple people he considered harming his coworkers (Sal, 2021). He also showed signs of violence and instability at work (Sal, 2021). There were signs of Wesbecker's intentions before he committed this mass shooting. Had these behaviors been reported, would this event have ever occurred? With the appropriate training, could his coworkers have been armed with the knowledge to help prevent this mass shooting?

The definition of a mass shooting is commonly accepted to be a shooting that occurs in a public place where four or more individuals are killed, not including the perpetrator (Fox & Levin, 2017). This cutoff of having at least four victims to qualify as a mass shooting is important to note and is highlighted across most research on mass shootings. However, not all definitions of mass shooting are identical, as some are more specific than others. The definition of mass shooting used in this research is "...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)" (Peterson & Densely, 2022, p. 1). There is no debate that a mass shooting occurred on the day Joseph Wesbecker entered his workplace in September 1989.

When a mass shooting occurs, many people want to know the "Why?" Why did this individual commit such an act? Why did they feel that others had to die? It is a morbid thought but one society contemplates today. Literature on mass shootings continually expands on these questions. Different authors identify different potential reasons for mass shootings. Researchers typically discuss mass shootings as one type of crime. However, the motivation and location for the attack play an essential part in understanding and categorizing the crime. Not all mass shooters are created equal.

Mass shootings have occurred since the 1800s, but many people did not take notice in the same way until the Columbine High School shooting (Schildkraut, 2021). This shooting occurred in 1999 and changed society's view of mass shootings. Society began to view mass shooters as young, white males who commit their crimes as revenge for some injustice against them (Silva, 2019). Many based their full knowledge of what a mass shooter would be on the two perpetrators seen in the Columbine High School shooting. However, this is not the only truth. While most mass shooters are male, only half are white (Schildkraut, 2021). Therefore, a one-size-fits-all approach does not seem to combat this phenomenon. Being able to picture only one specific type of person as the possible perpetrator of a mass shooting creates a dangerous bias in both prevention and the discussion of these crimes.

Similar to mass shooters, insider threats are often discussed in terms of generalities, while not all mass shooters or insider threats are created equal. Additionally, the two terms heavily overlap when it comes to workplace violence. The term "insider threat" is not necessarily widely known but is vitally important. In this research, an insider threat is defined as a current or former employee that causes damage to their place of business. However, researchers and individuals who educate others on this topic often discuss insider threats in terms of cyber threats or

potential espionage. Literature often deems insider threats as individuals who steal proprietary information from their work computer and sell it to an adversary for compensation (Alhajjar & Bradley, 2021). While this definition of an insider threat is not inaccurate, it is a limited view of insider threats and leaves a dangerous blind spot in the research; when individuals only discuss insider threats in terms of cyber threats, workplace violence is left out of the conversation and research. Therefore, using this definition for insider threat allows for research related to the category of insider threats known as "acts of violence," which is defined by the U.S. Department of State (2021) as "aggression or violent acts towards self or others." It creates a more all-encompassing view of what an insider threat can be.

When discussing an insider threat, there are often potential indicators listed to recognize in the workplace. These indicators can include but are not limited to, personal conduct problems, substance abuse, financial difficulties, and professional performance (Center for Development and Security Education, 2021). Personal conduct problems could look like patterns of lying, violating policies, or other inappropriate behaviors. Instances of substance abuse and financial difficulties are more straightforward to recognize, while professional performance indicators could be anything out of the ordinary for the individual. These indicators could be unexplained leaves of absence, reoccurring tardiness with no explanation, or the onset of keeping unusual work hours (Center for Development and Security Education, 2021). The thought behind disclosing these behaviors is that understanding the behaviors of an individual leading up to an act is the first step in lessening the occurrence. Therefore, informing individuals with what behaviors to look out for in their coworkers should give the workplace an extra layer of protection against insider threats.

A lack of all-encompassing research is similarly seen with mass shooters. As previously discussed, there are several types of mass shooters, and each will have behaviors differing from the others. Therefore, a workplace shooter will not necessarily have the same behavioral indicators as other mass shooters. Researchers cannot discuss workplace mass shooters in the same way as all different mass shooters and have a fully comprehensive discussion on workplace mass shooters. Like other insider threats, behavioral anomalies should occur with the perpetrator before the workplace mass shooting occurs. The behavior of workplace mass shooters before the attack indicates insider threat behavior and thus should be discussed in a similar vein. Workplace shooters may differ in behavior from other mass shooters and should be addressed regarding insider threat behavior.

With the notion that workplace shooters may differ from other mass shooters and fall more in the insider threat category, this research will address several questions:

1. Are workplace shooters more likely to have disclosed their plans before the shooting?
2. Are workplace shooters more likely to show signs of a stressor or crisis before their attack?
3. Are there differences in the outcome of the shooting for the perpetrator in the workplace versus non-workplace shootings?
4. Are there differences in the result of the shooting for the victims in the workplace versus non-workplace shootings?

Addressing these questions will allow analyses to show possible differences between workplace and non-workplace mass shooters and indicate insider threat behavior before the attacks.

Literature Review

Mass Shootings

As previously discussed, a mass shooting is a shooting that takes place in a public space where at least four individuals are killed, not including the shooter. While the number of mass shootings in the United States has increased, so has the media coverage (Capellan & Gomez, 2017). The media sensationalizes these events and perpetrators because of the extensive coverage they often receive. Also, with the addition of more and more types of social media, more information is available than ever on these events. Nonetheless, more research is needed to better inform the public and policymakers alike, which can serve to address important misperceptions. Society is receiving all of its information from media outlets instead of factual information on this type of crime leaving a skewed view in the eye of the public. For starters, media coverage is more likely to be prominent with higher fatality rates (Schildkraut, 2021). Shootings with a victim count closer to the four minimum are not as highly discussed, and society does not hear as much about them. Therefore, the worst of the worst are seemingly brought the most attention and discussed most heavily by the public.

Additionally, the motivation for the shooting may cause the media coverage to appear differently (Schildkraut et al., 2020). Shootings based on the perpetrator's ideology are more likely to receive additional coverage than other motivators for the shootings. Even the vocabulary used to describe the shootings may differ. In cases where the shootings are motivated by ideology, the events are more likely to be called "massacres." In contrast, shootings based on other motivators, such as revenge in workplace shootings, are called "rampages" (Schildkraut et al., 2020). These terms frame how society views these events and the different types of perpetrators. Labeling a shooting as a "massacre" versus a "rampage" changes how the story is

received. Thinking of a massacre may bring to mind more terrorist or war-related killings, while a rampage may make someone think of an anger-fueled spur-of-the-moment attack.

The way that society views mass shooters is vital because it can help individuals identify potential threats. The image of mass shooters being based solely on those of the Columbine perpetrators is a dangerous precedent. Mass shooters are not only white males in trench coats who have been victims of bullies. Mass shooters are not solely middle-aged white males carrying out acts of white supremacy. Mass shooters have been found to have a range of characteristics, including racial heterogeneity (Capellan & Gomez, 2017). Therefore, having a preconceived notion of what a mass shooter looks like can allow future perpetrators to go unnoticed. While a mass shooter could very possibly be someone who looks and acts identical to the perpetrators of the Columbine attack, it is more likely that each perpetrator will look different than the others. Therefore, basing who a possible perpetrator could be on their looks or even sociodemographic factors instead of the behaviors being exhibited will limit society's ability to prevent these attacks by identification beforehand.

As briefly mentioned, there are different motivators for why a mass shooting may occur. Some research looks at the motivation for a mass shooting as falling into one of these five categories: power, revenge, loyalty, profit, and terror (Fox & Levin, 2017).

Table 1

Category	Motivation
Power	Motivated by the desire to control others or to further the perpetrator's cause
Revenge	Motivated by revenge that can be against a person, group, or even society and would most likely occur to right some wrong the perpetrator believes has happened against them
Loyalty	Motivated by their loyalty to a cause; this could be if they feel a loved one has been slighted and their cause is to seek out justice
Profit	Motivated by a gain in monetary value
Terror	Motivated by the aim to spread fear through violence

These five categories and the motivation for each is shown in Table 1 (Fox & Levin, 2017). It is important to note that these categories are not mutually exclusive nor all-encompassing. A perpetrator could fall into multiple categories or commit a crime for a different reason entirely. However, understanding the possible motives is a beginning point for understanding these crimes.

Other research categorizes mass shootings by where they occur. For example, school shooters are often considered a category of mass shooters (Kowalski et al., 2021). The same can

be said of workplace shooters. These shooters are usually more likely to be considered and debated regarding revenge. Mass shootings in a more public environment than a school or workplace are often more likely associated with the shooter's ideology and are discussed in those terms (Fox & Levin, 2017). However, because these events seem rare, it is much more challenging to break the category of mass shootings into sub-groups for further research. Most literature discussing mass shooters either discusses the phenomena as a whole or, more specifically, ideological or school shooters. These research topics parallel media coverage in that they are the most extensively discussed.

While understanding the shooter's motivation can give more insight into why the event occurred or why that specific place was chosen, simply understanding the motivation or basics is not enough to fully understand how to identify these potential perpetrators and hopefully lessen the number of these events—understanding the expected behavior associated with mass shooters before, during, and after the shootings are crucial. Each timeframe of conduct or how the events leading up to the shooting unfolded will allow invaluable insight to prepare better all individuals potentially involved.

The Federal Bureau of Investigation has compiled a list of the top behaviors they have identified as potential identifiers associated with mass shooters before the attack. These behaviors include mental health issues, interpersonal interactions, leakage, quality of thinking or communication, work performance, school performance, threats or confrontations, anger, physical aggression, risk-taking, firearm behavior, violent media usage, weight/eating habits, drug or alcohol abuse, impulsivity, physical health, sexual behavior, sleep habits, hygiene, and any other behavior that could cause worry (Center for Development and Security Education, 2021). For the behaviors listed such as interpersonal interactions or physical health, it implies

that the individual is having difficulties in these areas or that drastic changes are being seen from that person's normal state. It is also important to note that while most mass shooters show an average of four or five of these indicators before their attacks, this list remains incomplete (Center for Development and Security Education, 2021). Someone could show every behavior on this list and still not carry out a mass shooting. Conversely, someone could show none of these behaviors and still commit a mass shooting. Understanding human behavior is a daunting task. However, beginning to understand and notice these behaviors can help inform those who have been trained to handle these kinds of situations.

The behaviors mentioned above are those identified by the Federal Bureau of Investigation. However, these behaviors are not standardized across research; therefore, different research may focus on different behaviors. Mental health is a focus of many discussions on mass shootings, but an individual having a mental illness is not a risk indicator in and of itself. However, an individual exhibiting signs of psychological distress is a behavior explored in several studies. One finding showed that over half of the mass shootings discussed involved a perpetrator experiencing psychological pain (Kowalski et al., 2021). Along the same line, over half of the perpetrators identified in another study had psychological or behavioral issues before the attack (Silva & Capellan, 2018). An individual's psychological disposition should be considered when the individual appears to be under duress. This consideration could be on the individual's history of mental health difficulties or more directly the psychological state of the perpetrator before the attack.

Another indicator of potential mass shootings discussed in research is the presence of an adverse event before the attack (Capellan et al., 2019). Experiencing an adverse event before the attack means that the individual underwent an event that was either negative or the perpetrator

believed to be negative. This event could then be the motive for the attack. Experiencing an adverse event is most likely not enough for an individual to become a mass murderer, but the coupling of this event with other behavioral indicators could be the final push that this individual needs from life to feel that there is no other way. This point ties back to the idea that mass shooting perpetrators often show at least four or five of the behavioral indicators listed by the Federal Bureau of Investigation. It is typically not just one thing that causes someone to carry out this kind of violence.

Some people consider mass shootings to result from an individual with low self-esteem because of how they are often portrayed in movies and television, but a study has shown that many mass shooters show signs of narcissism (Bushman, 2017). Narcissism as a personality trait would provide these perpetrators with a sense of being both better than everyone else and that the world should subsequently revolve around them. Therefore, this narcissism could be set off by something like an adverse precipitating event. Their ego would be bruised, which could be enough for the individual to feel the attack is warranted. Also, narcissism in an individual could lead them to carry out an attack based on their beliefs with no regard for the lives of others. The presence of narcissism in some cases shows that a mass shooter is not always a bullied individual or victim. There is research that shows an individual may be more likely to carry out violent acts when they have a more favorable self-view (Bushman, 2017). This is not to say that all individuals with high self-esteem will be violent, but it more closely aligns with the finding of the presence of narcissism in mass shooters than the narrative that all of the perpetrators were previously victims of something themselves.

In addition to the behaviors discussed previously, the Federal Bureau of Investigation created a pathway to violence. This pathway explains the behavioral indicators that perpetrators

often demonstrate before carrying out violence. This pathway includes grievance, violent ideation, research and planning, preparation, probing and breaching, and attack (Center for Development and Security Education, 2021). This pathway undermines the idea that mass shooters are individuals who "snap" and begin attacking. Mass shootings are more often than not carefully planned out and calculated events. As a result of the extensive planning and preparation, perpetrators often leak their plans to somebody before the attack (Kowalski et al., 2021). As the Federal Bureau of Investigation and other researchers identified, leakage, or revealing to someone their violent intentions, is a significant behavioral indicator of a potential perpetrator. An individual leaking information on their plans should not be taken lightly. Individuals in society must know that this happens and learn to report this information to the proper authorities if they ever find themselves in this situation. A mass shooter is not necessarily someone we never saw committing a crime; they can be someone who directly states they will attack.

Leakage can also come in the form of the perpetrator directly threatening their target before the attack (Capellan et al., 2019). Therefore, threats of this nature should not be taken lightly. It is a direct reflection of the mind frame and intentions of the potential perpetrator. Additionally, in recent years, victim-specific mass shootings have increased (Capellan & Gomez, 2017). This finding means more attacks are directed at an individual, not just a random population or place. Victim-specific attacks highlight the significance of considering insider threats when discussing mass shooters because the victims are being targeted by someone they know or with whom they have been in contact. Both leakage and direct threats should not go unnoticed or unreported, especially as the number of victim-specific attacks increases.

Workplace Violence

Although not as widely studied as other mass shooters, workplace shooters have been more common since the 1960s (Capellan et al., 2019). The increase in workplace shootings since the 1960s could be a result of the increase of individuals in the workforce. This idea would be supported by the routine activities theory. The routine activities theory notes that crime, in this case a workplace shooting, is a result of an individual's everyday behavior. For a crime to occur, there has to be three variables present: a motivated offender, a suitable target, and the absence of capable guardians (Tewksbury & Mustaine, 2010). The overlap of these three variables is when a crime takes place. For workplace violence, the motivated offender would be the employee who may believe they have been wronged by their workplace and possibly motivated for some other reason. The suitable target would be the workplace or the other employees at the workplace. Lastly, the absence of a capable guardian simply means the individual does not believe there is someone at the workplace who can stop them before they complete their goal. The routine activities theory offers a possible explanation for how and why workplace shootings have increased since the 1960s.

This increase in mass shootings at the workplace is a direct reference to the need for further research on this topic. Additionally, mass shootings in the U.S. are more likely to occur in the workplace or involve employment problems than in other countries (Silva, 2022). Therefore, while mass shootings are not solely a U.S. issue, workplace shootings are an increasingly U.S. problem and should be studied as a phenomenon. It is not enough to recognize that these events are increasing without beginning to discuss a way to lessen these occurrences.

Workplace mass shooters are also found to be the most unlike other mass shooters (Lankford, 2012). This finding is essential to understand, as grouping workplace mass shooters

with different types of mass shooters and generalizing them all could be detrimental to the research and understanding of these events. It is worth mentioning that completed mass shootings were found more often when a workplace or open space was the shooter's target (Silva, 2020). Therefore, not differentiating the behavior of mass shooters specifically from other types of mass shooters leaves a large and important portion of these perpetrators out of the conversation. Without understanding these specific perpetrators, there cannot be a beginning to forming a plan to stop or even just lessen these attacks.

As discussed, not all mass shootings are covered in the same way by the media. Workplace shooters often have a revenge ideology and receive less attention (Schildkraut et al., 2020). As a result of receiving less attention, workplace shooters are discussed less frequently which could result in a lessened understanding. Few people focus on understanding these workplace shooters because there is not as much public interest as there is in school shooters (Silva, 2019). The lack of a salacious motivation or victims that pull as heavily on the heartstrings of society allows for workplace mass shootings to be pushed to the side in terms of coverage and understanding.

Additionally, research into media portrayal shows that the general public believes workplace shooters are more likely to be people who "snap" rather than individuals who show behavioral signs leading up to the attack (Schildkraut et al., 2020). This belief is also supported by the media's use of the word "rampage" in covering these attacks as discussed previously. Believing these individuals lash out due to a "snap" is a dangerous precedent as it allows the general public to remain ignorant of the behavioral indicators workplace shooters often show before an attack. Believing that workplace shooters will explode in a rage one day would indicate no way to stop or lessen this violence. If it cannot be predicted in any way, it cannot be

controlled. Films and television also allow for misconceptions about mass shooters to continue. The portrayal of workplace shooters in entertainment could make the masses unaware of warning signs or behaviors that could indicate an impending attack (Silva, 2019). Therefore, the importance of educating individuals on the behavioral indicators associated with workplace mass shooters cannot be understated.

It is also significant to mention that researchers have found that survivors of mass shootings show changes in their occupational participation and performance (Ellsworth et al., 2022). The trauma associated with being a survivor of this kind of violence is a real problem. Not only are there individuals losing their lives, but there are also many other victims in the workplace. An organization that experiences a mass shooting is deeply affected by the loss of individuals and the trauma experienced by everyone involved. It has a lasting effect on the workplace. Further, not only are the workers affected, but the workplace as a whole will be affected. Much time and money will be lost as a result of these attacks and all of the destruction they leave behind.

As of 2021, the U.S. Department of Justice has declared the workplace one of the most dangerous places a person can be (Wandler, 2021). Saying the workplace is this dangerous may be shocking as many people do not think twice before heading to their place of work each day. However, this declaration can also be addressed by the routine activity theory. A working adult most likely spends a large portion of their life at their place of work, therefore, their normal behavior would involve being at their workplace. Again, this increases the likelihood of an opportunity to arise where one could be a victim of violence at work. Does this mean one can assume they spend a large portion of their life in danger because of where they are? The lack of discussion around workplace mass shootings but knowing how often they occur parallels with

other forms of workplace violence; it is not only mass shootings in the workplace that are heavily occurring while lightly discussed.

Workplace stress can be enough to drive individuals to violence, which is something in which people should be informed. It is found that an authoritarian workplace tends to have more violence than other types of workplaces (Johnson & Indvik, 1996). The feelings of disdain and helplessness associated with stringent environments can push individuals to be violent in their workplace. This kind of environment can also be extremely triggering for individuals who have narcissistic personality traits, which can be dangerous as previously mentioned. The risk of violence due to environmental pressures is vital for managers and higher-ups in a place of business to keep in mind to ensure a safe environment.

As discussed, an adverse event in the eyes of the perpetrator predating the mass shooting can be seen as one of the motivators for the shooting. Some research has found that in mass shooting data, more than two-thirds of the disgruntled employees were tied to a precipitating adverse event (Capellan et al., 2019). The stress of the workplace can be the precipitating adverse event that these perpetrators are experiencing. The high-pressure environment many face at their job is not something that occurs without consequence. Not all individuals can handle the amount of stress seen by many in business across the United States. Further, over half of the aggrieved employees in a study had made a threat directly to the target (Capellan et al., 2019). Therefore, the perpetrators often showed two behaviors before the shooting that would be considered indicators. These perpetrators, for the most part, were not hiding their intentions. If noticed and reported, this behavior could have helped the proper authorities stop the perpetrator before they could carry out their heinous act.

A common belief of mass shooters, as previously discussed, is that there is a moment where they "snap" and then carry out these fits of rage. This idea is further believed in workplace shootings with the phrase "going postal." The term is often used about an individual who has seemingly exploded in a rage or acted violently very suddenly. The roots of this expression can be traced back to a workplace shooting in 1986 in Oklahoma, where a postal worker shot and killed fourteen of his coworkers while injuring six more (Pearson, 2022). The shooting was followed by other postal workers committing workplace shootings. Thus, the phrase was used and caught on, even being used today to describe this seemingly fit of rage.

However, researchers now stress that workers do not simply "snap" and commit acts of violence. There are subtle or sometimes obvious indicators leading up to the violence (Romano et al., 2011). Although there is no record of the behavior leading up to that day in Oklahoma in 1986, one could speculate that there were indicators of some sort before since there was such a large victim count – it was a very violent and massive attack. Researchers now see workplace violence as calculated, not spontaneous (Johnson & Indvik, 1996). This change in belief is a critical distinction supported by further research. For example, research on workplace firearm homicides focusing on events from 2011 to 2015 found that individuals would leave to retrieve a firearm and then return to the scene to commit violence (Doucette et al., 2019). Thus, leaving and returning to the scene of the crime shows that the attacks were not ones of opportunity and immediate rage. The attacks were planned enough that individuals would leave the scene, retrieve a firearm, and then return to the workplace to carry out their attack. Believing that workplace attacks occur as spur-of-the-moment decisions would not allow for occurrences where individuals were organized or planned enough to leave to retrieve a firearm before the attack. This finding shows a level of preparation that went into their shooting.

There have been strides made in an attempt to understand workplace violence better and create safer workplace environments. Researchers have defined two points of time that occur with a workplace attack. There is the action point, then the flash point (Romano et al., 2011). The action point occurs when an employee notices a sign that indicates potential violence. That employee must decide whether or not they should do something due to this sign. Should it be reported? Should they address it directly? Should they act as though nothing happened? Then, there is the flashpoint. The flashpoint is when the actual violent act occurs. The researchers specify that the intention is to stop violence at the action point so that the flash point never occurs (Romano et al., 2011). Stopping violence at the flashpoint may mean it is too late for some victims. There have been several suggestions as to how organizations should combat workplace violence. These suggestions include identifying the risks, implementing security controls, creating a culture of respect, implementing a workplace violence prevention program, and providing training and active shooter drills (Wandler, 2021). All of these suggestions address the various findings that have been discussed here. It is important to note that the suggestions begin with identifying risks. To implement security or prevention, employees have to be able to identify the possible risks, which highlights the importance of understanding behavior as discussed here.

Additionally, it is noted that each action or situation must be judged and handled differently (Romano et al., 2011). There is no one-size-fits-all approach to combatting workplace violence. This again aligns with the note made concerning the indicators listed by the Federal Bureau of Investigation; a perpetrator may show all of the indicators of a potential mass shooter or none that anyone has seen. Employees must be educated on different scenarios, how to recognize them, and how to react when a situation arises. Further, leadership in these workplaces

must be educated on the nuances of these different possible situations and the safest and fairest ways to react when they occur.

Insider Threat

Many organizations have created insider threat programs to address workplace violence and possible employee abuse. However, not all insider threat programs are designed with the same goals. This could be a result of needing a clear definition of what an insider threat is or how it may appear. There are reportedly forty-two different definitions for the terms "insider" and "insider threat" (Mundie et al., 2013). Within those definitions of "insider threat," the definitions typically fall into one of three categories being technical, social, or socio-technical (Mundie et al., 2013). These categories mean that the definitions either focus on the use of computer-based systems or on the behavior of the actual insider. The last approach, socio-technical, combines the focus of the other two definitions. Research into the definition of an insider and insider threat has revealed that there are three important entities to highlight these definitions (Mundie et al., 2013). The three entities are the individual, the organization of the individual, and the assets which are threatened. Additionally, the relation between each of these three entities provide further explanation for the definitions. Thus, a combination of the understanding of each of these entities is put together each time a definition of an insider threat is given.

In the definitions, the category shown to have the most variance is the part of the definition pertaining to the insider's actions (Mundie et al., 2013). In previous research, it was found that there were six different categories of action; these categories were causing physical harm, accessing systems with malice intent, being a risk, possessing an understanding of the systems, violating policies, and impersonating an employee or insider (Mundie et al., 2013). These categories of different types of actions by the insider further highlight the differences in

definitions seen across insider threat discussions. Lacking a regular definition could be detrimental to insider threat programs and research, as leaving out parts of a definition because of discrepancies could result in vital information being left out of the discussion. This lack of a regular definition also creates issues when attempting to educate individuals on the risks associated.

Additionally, it is nearly impossible to create detection approaches for insider threats when it is not fully understood what an insider threat is (Bishop & Gates, 2018). It is hard to combat a force that must be fully understood and defined but is simply not. A comprehensive definition some researchers use is that an insider threat is “a trusted entity that is given the power to violate one or more rules in a given security policy... the insider threat occurs when a trusted entity abuses that power” (Bishop & Gates, 2018). This research will use a slightly more straightforward definition of insider threat, as previously mentioned that is, an insider threat is a current or former employee that causes damage to their place of business.

Insider threats are often discussed in terms of cyber threats. Much of the research and understanding of insider threats revolves around cyber behavior. One research example analyzes employees' emails (Shaw et al., 2013). While this sounds entirely cyber-based, the human behavior behind the email is what was interpreted. It was found that the more negative sentiment that was found in an email, the more likely that it was also an insider threat risk indicator. Not all examples of emails that had negative emotions contained within them were examples of insider threats. However, every email containing insider risk indicators also included negative sentiment (Shaw et al., 2013). This finding correlates back to the notion that there is no one-size-fits-all approach while also recognizing the presence of negative emotion in all insider threat risk emails.

Another example of cyber behavior in insider threat research is how computer behavior was used to detect possible threats (Alhajjar & Bradley, 2021). Again, while only the cyber behavior of insiders was being monitored, human behavior showed differences in potential insider threats. Individuals with higher levels of conscientiousness and neuroticism were likelier to exhibit insider threat behaviors. Conversely, high levels of openness, extraversion, and agreeableness were less likely to indicate individuals exhibiting insider threat behavior (Alhajjar & Bradley, 2021). Individuals who had personality traits that would make them less likely to have issues with their coworkers or bosses were less likely to show signs of insider threat behaviors. The researchers then showed that a model could be created to find a "risk score" for an individual to prioritize those that need monitoring (Alhajjar & Bradley, 2021). An organization could use this idea of risk scoring to categorize individuals who need more monitoring than others, as it would be challenging to monitor everyone within an organization constantly. However, knowing these behavioral patterns could give companies a place to start recognizing behavior. For example, if an individual is having repeated interpersonal conflicts with co-workers or supervisors, this could be an indicator of a potential insider threat.

Government agencies have also looked into human behavior related to insider threat risks. These agencies specifically identify and observe access attributes (such as clearance level), professional performance, security and compliance, technical activity, allegiance to the United States, foreign influence, outside activities, financial considerations, substance or alcohol abuse, personal conduct issues, and criminal conduct (Center for Development and Security Education, 2021). Individuals who have more access to secure information are going to be a higher risk than other employees. Additionally, individuals who have issues with professional performance, a lack of compliance, or risky technical activity are going to be more likely to be insider threats. A

lack of allegiance to the United States or the presence of foreign influence is important to note as it could show the likelihood that the employee could be persuaded to be an insider threat through ideology by an outside person or entity.

Outside activities, financial considerations, drug abuse, personal conduct issues, and criminal conduct can all also be insider threat indicators as they are a reflection of the whole picture of the employee. Employees are people with complicated lives which can bleed over to affect their work performance or even push them to become insider threats. As with the behavior of potential mass shooters, an individual can have none of these behaviors and be an insider threat or have all of the behaviors and prove to be no threat to their organization. Regardless, these are the behaviors that government agencies have deemed the most vital to observe concerning potential insider threat risk within an organization. It is also important to note that many of these behaviors overlap with those identified with mass shooters.

Again, similarly to mass shooters, motivations have been identified for insider threats. These motivations include false entitlement, personal frustrations, ethical flexibility, lack of loyalty to the company or nation, and a lack of empathy (Bradley et al., 2017). While these differ from the listed motivations of mass shooters, some do parallel one another. The feelings of false entitlement and personal frustrations could motivate an insider to steal information or commit a mass shooting. This possible motivation again relates to the importance of observing the behaviors of employees and monitoring the work environment. Employees are less likely to turn into insider threats when happy with their place of employment (Shaw et al., 2013). The importance of knowing employees' attitudes towards the workplace cannot be overstated.

Extending the Literature

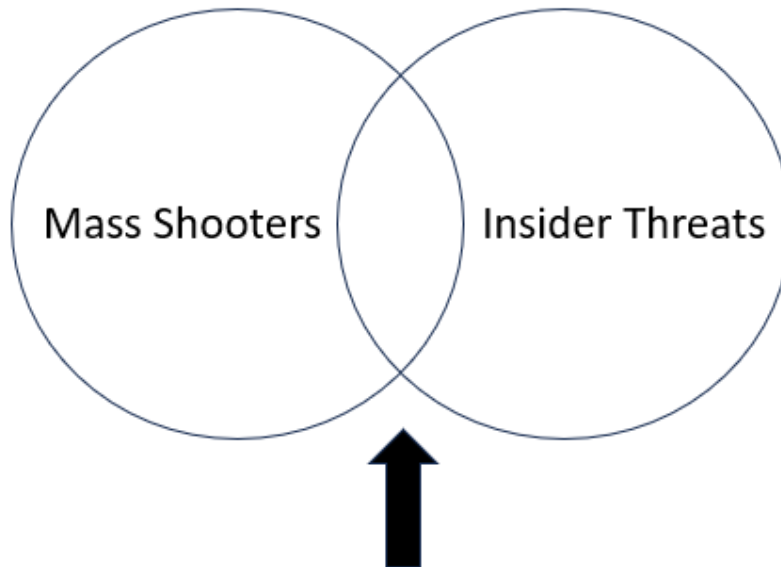


Figure 1

While there is extensive literature and research on mass shootings and insider threats, there is a lack of research on where these concepts overlap, as shown in Figure 1. There is limited literature on workplace violence overall, and even less on specifically workplace shooters. Understanding the behavior of mass shooters, specifically workplace mass shooters, will help inform the ambiguous definition of an insider threat. Conversely, understanding the behaviors of insider threats will help further the understanding of workplace mass shooters. Additionally, extending the research related to insider threat behavior is vital. While most of the literature around insider threats is cyber-related, as previously mentioned, it is important to note that behind the computer is still an individual carrying out these behaviors. Insider threats cannot be discussed without acknowledging the human behavior attached to them. This research addresses those behaviors always present in cases of insider threats, even if they are sometimes

behind a computer screen. Not allowing these behavioral indicators to overlap in research leaves a blind spot in the literature. This research will benefit any researchers or agencies interested in insider threats or a better understanding of mass shooters. Potentially, it could help anyone who goes to a place of employment as more organizations are prepared for insider threats, including workplace shooters.

Methods

This research is designed to address workplace shooter behavior that aligns with the behavior of insider threats. The goal is to show the differences between the workplace and other mass shooters. The research addresses questions regarding workplace shooters and the likelihood of disclosing information prior to the attack, the likelihood of signs of a stressor before the attack, the outcome of the event for the perpetrator, and victim count. These questions aim to address the differences between workplace and non-workplace mass shooters while also aligning workplace shooters' behavior with that of insider threat indicators.

Database

The data source for this research was chosen to analyze workplace versus non-workplace mass shooters' behavior. The chosen source is a database created by The Violence Project. The Violence Project lists itself as a nonprofit and nonpartisan center for research that was created to help prevent violence (Peterson & Densely, 2022a). The specific database used for this research is the "Mass Shooter Database" (Peterson & Densely, 2022b). This database is funded by the National Institute of Justice, the Office of Justice Programs, and the U.S. Department of Justice. The database was created using open-source data, including public records. Each mass shooter was investigated and coded by two individuals to ensure accuracy (Peterson & Densely, 2022b). The events in the database cover from August 1966 to November 2022. There are one-hundred ninety mass shootings in total in the database. Of the one-hundred ninety mass shootings, fifty-eight of those are mass shootings that occur at a workplace. Therefore, about thirty-one percent of the mass shootings that have taken place in the United States since 1966 have occurred in the workplace. With about a third of the mass shootings in the United States occurring in the

workplace, this emphasizes the need for additional research and discussions on this specific type of violent event.

Variables

The database includes a variety of variables coded for each mass shooting. These variables include information on the perpetrator, attack location, victim count, perpetrator background, weapons used, and event outcome. The background of the perpetrator information contains details on socioeconomic status, family information, such as number of siblings, or if they were raised in a two-parent household, school and work information, such as amount of schooling completed and work history, criminal history, trauma, adverse childhood experiences, signs of a crisis before the attack, health and mental health, grievance and motivation, and social contagion. Of the variables included, the following variables will be explored for this research: victim count, signs of a stressor (including recent stressor and signs of being in crisis), leakage before the shooting, and the outcome of the event. These variables are chosen as a result of the literature review as well as indicators of both insider threats and mass shooters.

The victim count variable shows the difference in damage on the surface caused by the shooter. This difference may result from workplace mass shootings often being victim-specific. Most research regarding mass shooters involves information on the victim count since it is essential to define whether or not the event could even be classified as a mass shooting. Further, research has found that there has been an increase in victim-specific attacks, and therefore, it is essential that this variable be included here (Capellan & Gomez, 2017). Additionally, mass shootings with lower victim counts are not typically discussed by the media as extensively as other attacks. Therefore, workplace shooters may not be as heavily discussed as other mass shooters because of the lower victim counts typically seen.

Then, exploring the variables of recent stressors and signs of being in crisis shows if workplace mass shooters are experiencing stressful events before the shootings, as described in the literature. The presence of a recent stressor or signs of being in crisis also relates to the indicators of insider threats as being unhappy in their workplace. Research has indicated that employees are less likely to turn into insider threats when happy with their place of employment (Shaw et al., 2013). Therefore, happy employees should also be less likely to become workplace shooters. Individuals without signs of stress or signs of being in crisis at the workplace should be less likely to become violent perpetrators, as research would indicate. Including these variables will show the relationship between workplace mass shooters and insider threat indicators.

Similarly, leakage before the shooting offers a similar result. Perpetrators informing others of their plan before their attack is another indicator of insider threat and mass shooter behavior. Findings indicated that more than two-thirds of the disgruntled employees were tied to a precipitating adverse event in mass shootings research, and over half of the same perpetrators have made a threat directly to the target (Capellan et al., 2019). Thus, including the leakage variable further aligns workplace mass shooters with insider threat behavior and coincides with prior research.

Lastly, the event's outcome shows if there are differences between the workplace and other mass shooters as far as how the event ends for the perpetrator. The outcomes could be suicide, suicide by a cop, or an arrest. The event's outcome could show more information about the attacker's mindset during the event. For example, if an individual commits suicide during their attack, it could indicate that they did not place a high value on their own life or that they believed the cause for their attack was worth more than their life. Additionally, existing literature addresses perpetrators who commit suicide versus those who do not (Lankford, 2013). The

research found that mass shooters often do not prioritize their survival, with around 50% dying either by suicide or suicide by cop (Lankford, 2013). However, this research does not include this variable in comparing workplace shooters. Thus, including this variable could help address the discussed gap in the literature.

Each variable chosen for this research was picked because of a connection with previous literature on mass shooters and insider threats. The variable victim count and leakage before the shooting reinforce the idea that workplace shootings are often victim-specific. Additionally, according to the Center for Development and Security Education (2021), both relate to ideas of insider threats because both lend themselves to personal behavior issues, an insider threat potential risk indicator. If an individual shows signs of leakage or conflict with a coworker before the attack, they exhibit insider threat behavior. The variables that show signs of a stressor before the attack lean heavily into the idea that individuals show behavior that they are unhappy leading up to the event. Not only do these variables relate to the idea that unhappy workers are more likely to act out in the workplace, but also, including these variables downplays the previously accepted idea that workplace shooters are individuals who "snap" and nothing could have been done beforehand. Lastly, including a variable for the event's outcome helps address a gap in the literature while hopefully giving a better understanding of what the individual had in mind for the attack.

Additionally, each variable listed addresses a part of the Federal Bureau of Investigation's pathway to violence. As previously mentioned, the pathway is a grievance, violent ideation, research and planning, preparation, probing and preaching, and finally, the attack (Center for Development and Security Education, 2021). The signs of being in distress address the grievance stage of the pathway. Next, the leakage of the plan falls into both preparation and

probing/preaching. Lastly, the victim count and outcome of the event address the attack portion of the pathway.

Analytical Plan

Each variable will be compared against the dataset's workplace attacks and other mass shooters. Therefore, a bivariate analysis is used to answer the yes/no questions posed for this research. The dependent variable is workplace, coded as "Yes" or "No" on the attacker being a current or previous employee of the environment being attacked. The independent variables are victim count, recent stressors, signs of being in crisis, leakage, and event outcome. These variables are coded by the data set as a result of the work done by The Violence Project. The victim count is a numerical coding and is the number of individuals who died due to the event. The variable recent stressor is coded as No evidence = 0, Recent break-up = 1, Employment stressor = 2, Economic stressor = 3, Family issue = 4, Legal issue = 5, and Other = 6. The signs of being in crisis variable is noted when "Current Circumstances overwhelming coping mechanisms causing a marked change in behavior from baseline." It is coded as No evidence = 0 and Yes = 1. Leakage before the shooting is when communication to a third party of intent to harm happens before the attack. This variable is coded as No evidence = 0 and Yes = 1. Lastly, the event's outcome variable is coded as Killed self = 0, Killed on scene = 1, Apprehended = 2, and Apprehended, then suicide before trial = 3.

To run a bivariate analysis with each independent variable and the workplace variable, some of the variables had to be recoded to allow for a yes/no question to be answered. The variables of the recent stressor and the event's outcome had to be recoded to allow for only two outcomes in the variable. With a recent stressor, the variable was coded to show that either a stressor was or was not present before the event, not necessarily each stressor category.

Therefore, this research coded a recent stressor as 1 = Yes, a stressor was present, and 0 = no stressor was present. The event's outcome variable was coded as having only two outcomes: either the perpetrator died on the scene, or they were arrested. Thus, the categories of "Killed Self" and "Killed on Scene" were combined to make one category of 0 = Died on Scene, and the categories of "Apprehended" and "Apprehended, then suicide before trial" were combined to make the category of 1 = "Apprehended on Scene." The other variables were used as coded by the database.

In addition to the binary analyses, a multivariate regression is completed to simultaneously evaluate the relationship of all variables with the workplace variable. The variable of the workplace was the dependent variable, with stressor present, crisis present, event's outcome, leakage, and victim count being the independent variables. This multivariate regression allows for analyzing the workplace variable as dependent on the other listed variables. All analyses are completed using the R software package.

Findings

The results of this research are a result of binary analyses and multivariate regression. Each result was designed to answer the questions posed for this study. These questions all address the overlap of workplace mass shooters and the behavior of insider threats. Each variable addresses a specific question stated in this research. The bivariate analyses discuss each variable concerning the workplace variable independent of the other variables in question. The results of all of the variables discussed in relation to one another are seen in the multivariate regression.

Binary Analyses

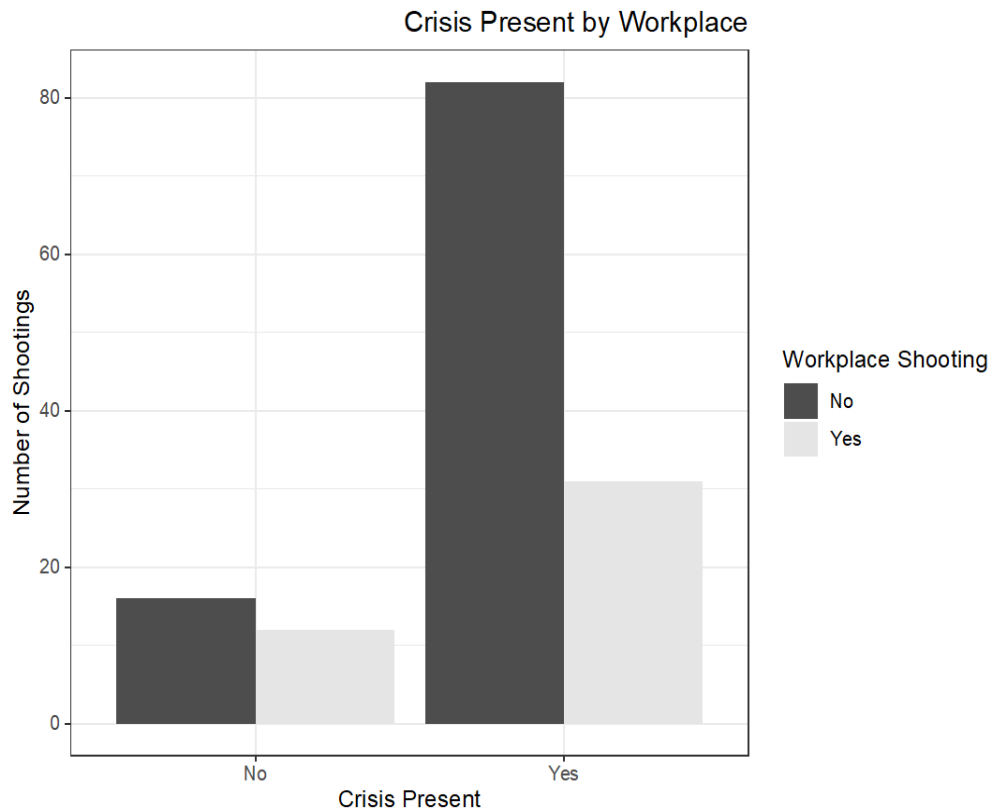


Figure 2

Figure 2 shows the comparison of workplace versus nonworkplace shooters in terms of the presence of a crisis. The results showed that the majority of perpetrators did experience a crisis before their attack. For non-workplace attacks, eighty-two occurred with a crisis present, while sixteen occurred without a crisis. For workplace attacks, thirty-one occurred while a crisis was present, and twelve occurred without a crisis. Therefore, more than double occurred in the workplace with a crisis present over those without a crisis. For non-workplace mass shootings, a crisis was found to be more than four times more likely to have been present. This finding supports the notion that mass shootings often can be triggered due to a crisis being endured by the perpetrator. The presence of a crisis could also lead to the perpetrator showing insider threat

indicators before the attack. From a crisis, these indicators could be issues with work performance, mental health issues, anger, or any other behavior that could cause their coworkers to worry.

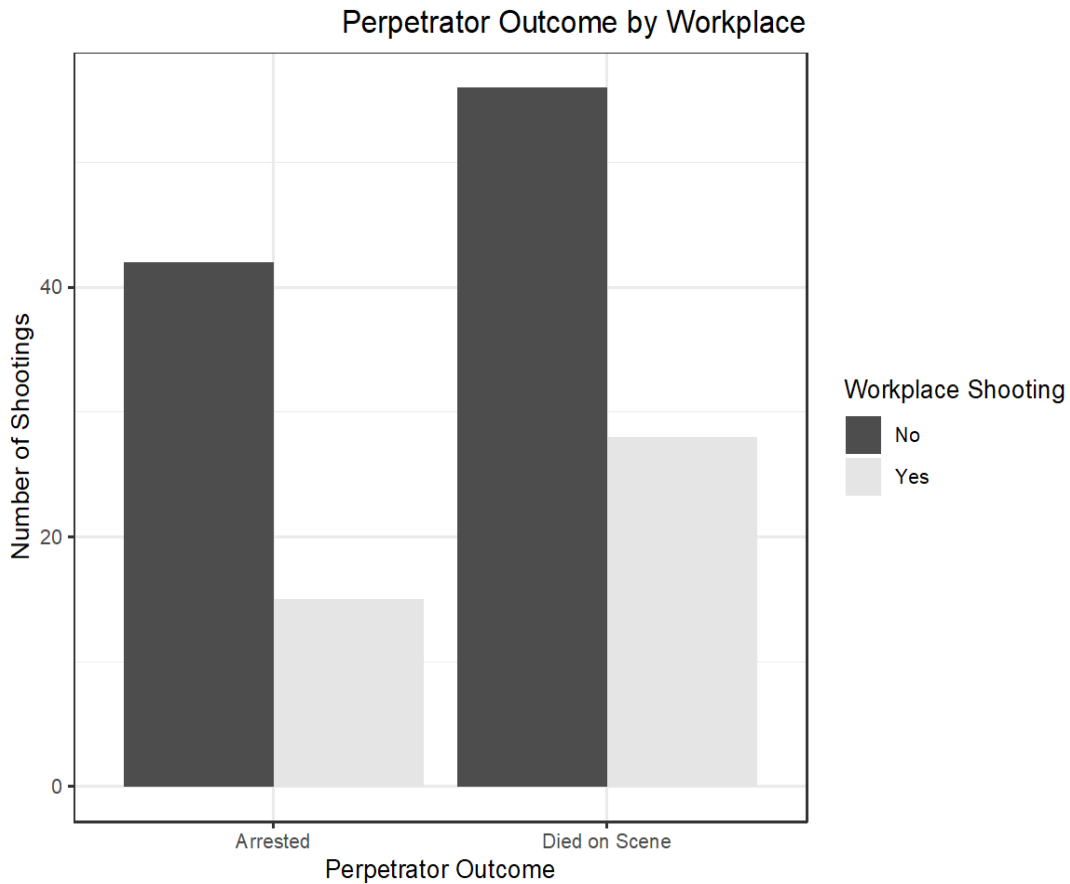


Figure 3

In Figure 3, workplace versus non-workplace shooters are being compared in terms of the outcome of the event for the perpetrator. Figure 3 shows that overall more perpetrators died on the scene than were arrested. Fifty-six perpetrators died on the scene of non-workplace shootings, while forty-two were arrested. When the shooting occurred at the workplace, twenty-eight perpetrators died at the scene of the attack, while fifteen were arrested. About half as many

were arrested than died on the scene in the cases of workplace mass shootings. The likelihood of the perpetrators dying on the scene could indicate seeing their attack as more important or necessary than their own life.

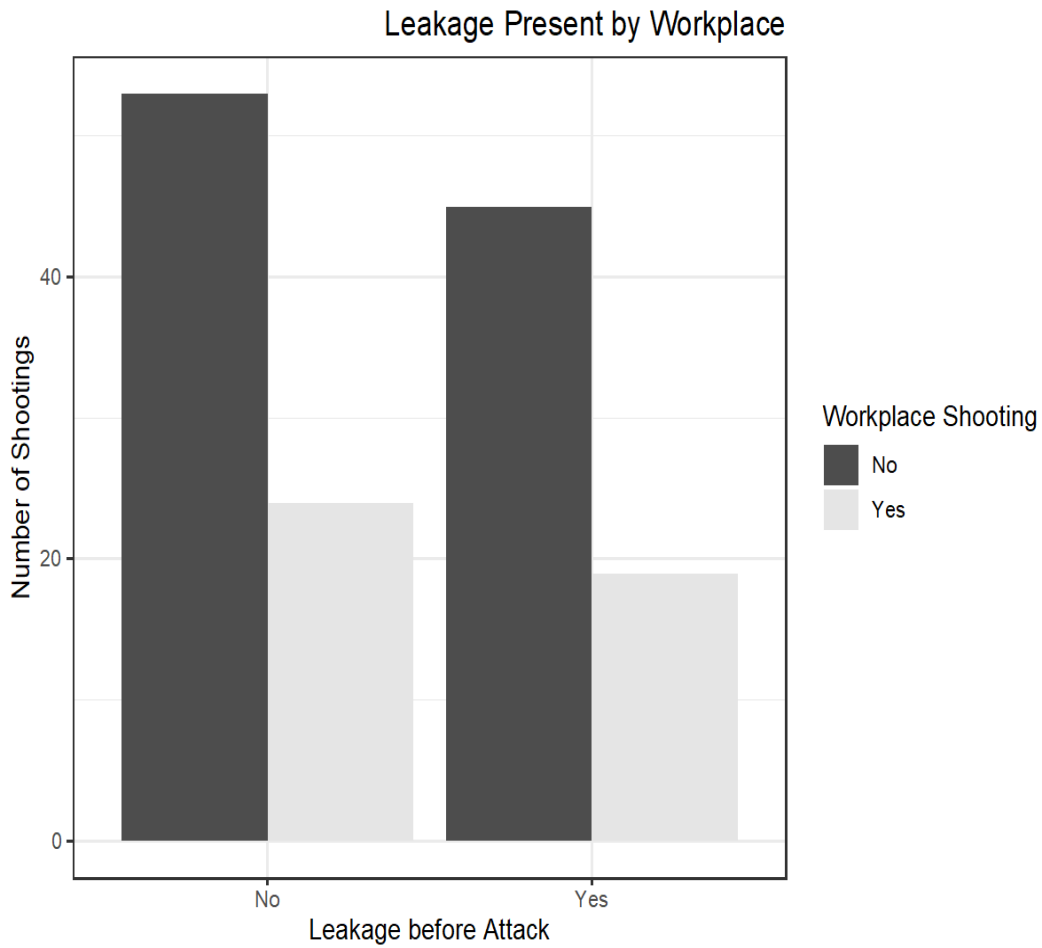


Figure 4

Figure 4 compares the presence of leakage for workplace versus non-workplace mass shootings. It shows that leakage was less likely to be seen in both cases of workplace and non-workplace mass shootings. In non-workplace shootings, fifty-three attacks occurred with no leakage, and forty-five occurred with leakage before the attack. The number of occurrences in each category was similar, but an instance of no leakage was still more likely. In workplace

shootings, twenty-four attacks occurred without leakage before the attack, and only nineteen occurred with leakage prior to the attack. Workplace shootings seem to mimic the trend in the likelihood of leakage before the attack, as with non-workplace shootings. This finding does not support the idea that perpetrators often leak information about their attacks. Still, leakage in workplace mass shooters does support the notion of insider threat behavior.

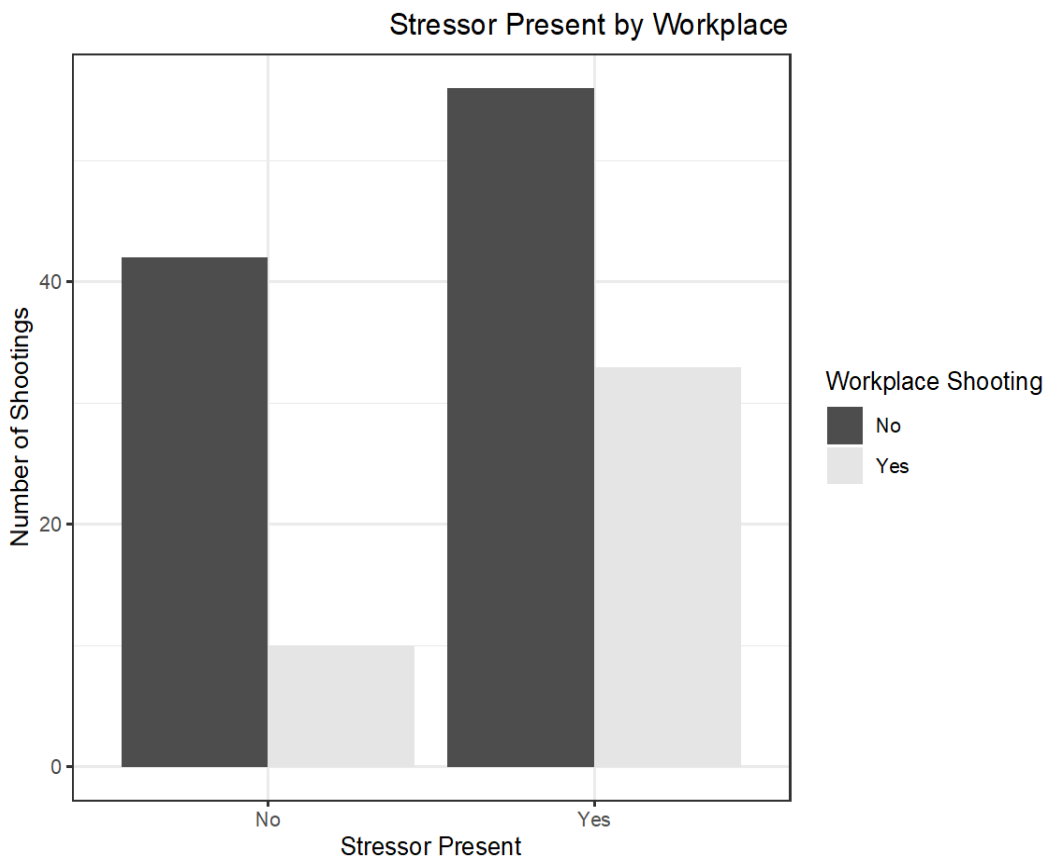


Figure 5

In Figure 5, workplace and non-workplace shootings are compared based on the presence of a stressor and both were more likely to have the perpetrator experience or perceived to have experienced a stressor beforehand. Fifty-six attacks had a stressor present in non-workplace shootings, while forty-two did not. Thirty-three had a stressor present in workplace shootings,

while only ten did not. Thus, in workplace mass shootings, the perpetrator was three times more likely to have experienced or perceived to have experienced a stressor before the attack. This finding correlates with the findings of a crisis before the shooting and can be discussed in the same vein. The presence of a stressor before the attack can also lead to the presence of potential inside threat indicators in the perpetrator. Additionally, this finding supports the literature that mass shooters, especially those in a workplace, often have a perceived stressor before or even as motivation for their attack.

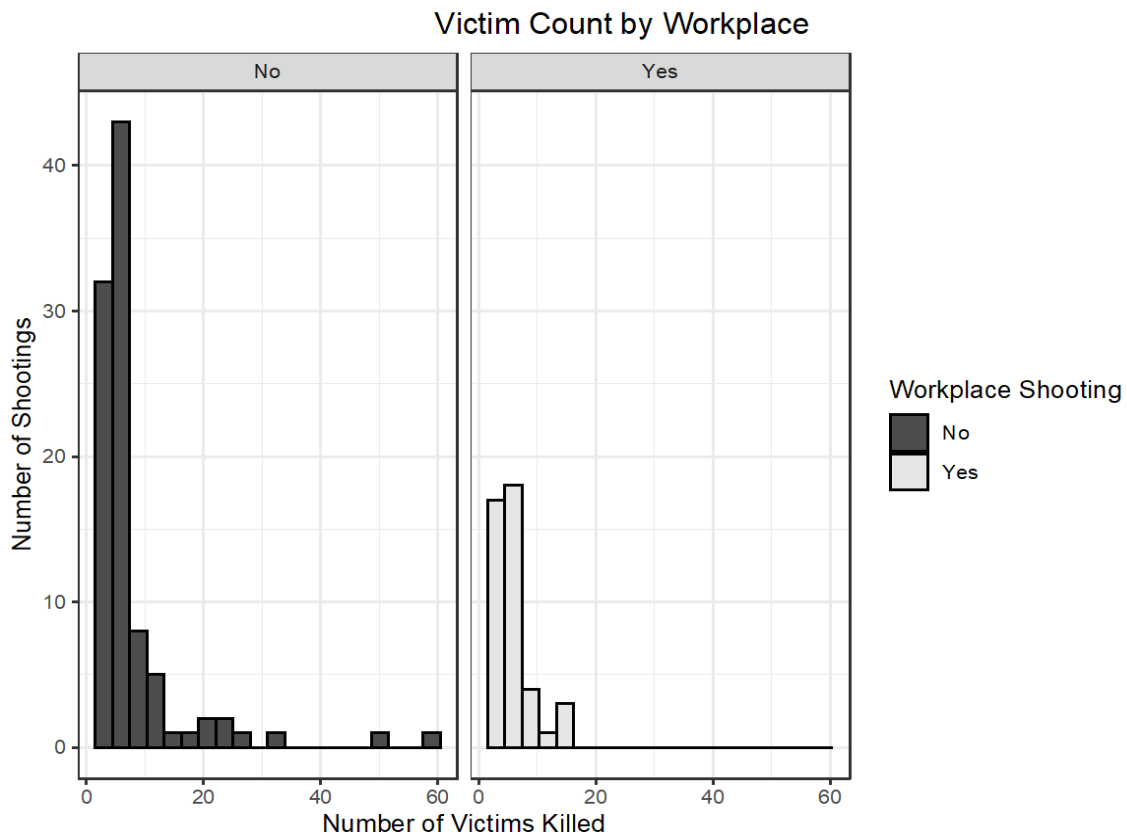


Figure 6

Figure 6 shows the victim count separated on the premise of being either a workplace or non-workplace shooting. It was found that more often the victim count is closer to the minimum number necessary to be categorized as a mass shooting, which is four, regardless of location. For

both workplace and non-workplace shootings, it is more likely for the victim count to be less than twenty than it is for it to be greater than twenty. Additionally, the graph shows that in workplace shootings, there is no instance where the victim count exceeds twenty deaths, whereas in non-workplace shootings, there are victim counts close to sixty. The graphs show that workplace shootings tend to have lower victim counts than other mass shootings. This finding supports the idea that workplace mass shootings more often have victim counts closer to four than a more extreme number, like twenty victims or higher. While workplace and non-workplace mass shootings tended to have victim counts closer to four, only non-workplace mass shootings reached those higher victim counts. This finding supports the notion that workplace mass shootings are likely more victim-specific.

Multivariate Regression

Table 2

Variable	Estimated Standard Error	t-value	Pr(> t)	P-value
Intercept	0.366595	0.097360	3.765	0.000247***
Stressor Present	0.212315	0.082981	2.559	0.011612*
Sign of Being in Crisis	-0.257276	0.103619	-2.483	0.014257*
Event's Outcome	0.104258	0.082058	1.271	0.206077
Leakage Present	0.020099	0.079931	0.251	0.801849
Victim Count	-0.008174	0.005296	-1.543	0.125097

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Table 2 shows the result of the multivariate regression. The root mean square error (RMSE) for this multivariate regression is 0.45, meaning the listed independent variables have approximately half of a unit in discrepancy in predicting the shooting being at a workplace on only a one-unit scale. The R-squared for the regression is 6.24%. This result shows that only about 6% of the explanation for the workplace variable is explained by the included independent variables.

The statistically significant independent variables are the presence of a stressor and a sign of being in crisis. Both variables had a p-value of less than 0.05. Therefore, the null hypothesis that each variable is unrelated to the workplace variable can be rejected. The estimated standard error for a stressor being present is 0.21. This result means that having a stressor results in a 0.21-unit change in the likelihood of the attack being at a workplace. The estimated standard error for a crisis being present is -0.26. Therefore, the presence of a crisis results in a -0.26-unit change in

the workplace variable. A negative estimated standard error means that having a crisis present lessens the likelihood of the workplace variable being present. The other variables were not statistically significant in this regression. The variables of the event's outcome, leakage present, and victim count all had a p-value greater than 0.05. Thus, one cannot reject the null hypothesis that these variables are unrelated to the variable workplace.

The findings for the two significant p-values show the interconnectedness of a stressor or crisis and a workplace mass shooting. However, the negative standard error for a crisis being present does not support the bivariate analysis results. Additionally, the lack of statistical significance in the other variables does not negate the connection between those variables and the workplace. These independent variables are not made to increase the likelihood of a mass shooting at a workplace over a different environment. This notion also applies to the results of the RMSE and R-squared for the overall regression.

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Discussion

This analysis addressed questions regarding the overlap of workplace mass shooters and insider threats. As stated previously, the questions posed in this research are:

1. Are workplace shooters more likely to have disclosed their plans before the shooting?
2. Are workplace shooters more likely to show signs of a stressor or crisis before their attack?
3. Are there differences in the outcome of the shooting for the perpetrator in the workplace versus non-workplace shootings?
4. Are there differences in the result of the shooting for the victims in the workplace versus non-workplace shootings?

These questions analyze the differences between workplace and non-workplace mass shootings while also addressing the behavioral indicators seen in cases of insider threats. Both the binary analyses and multivariate regression were run to analyze the data in search of a better understanding of this data.

Binary Analyses

The results of the binary analyses comparing the presence of a crisis before the attack in both workplace and other mass shootings answered the question pertaining to the idea that the perpetrators are more likely to experience a stress-inducing event before the attack. This finding is consistent for both workplace and other mass shootings. Therefore, according to this data, workplace shooters are more likely than not to experience a crisis before the attack. However, the data does not support the notion that workplace mass shooters are likelier to experience a crisis

before their attack than any other mass shooter. Overall, it seems that regardless of the focus of the attack, it is likely that the perpetrator has experienced a crisis leading up to the event.

The variable of a crisis being present addresses whether or not workplace shooters are more likely to show signs of a stressor or crisis before the attack. From the data, it can be said that mass shooters are more likely to show signs of being in crisis before an attack than showing no sign of a crisis. However, to answer the question, workplace mass shooters are not statistically more likely than other mass shooters to experience a crisis before the shooting. Therefore, there is no difference in this variable between workplace and non-workplace mass shooters.

The findings for a crisis being present support existing literature that found that in a sample of mass shooters, over half experienced psychological pain (Kowalski et al., 2021). At the same time, the finding shows that different types of mass shooters show behaviors listed as indicators of insider threats, not just those who attack a workplace. However, mass shooters who do not attack their place of work will not be seen as an insider threat simply because the shootings did not take place at the perpetrator's workplace. For the event to be an instance of an insider threat, it has to occur at the perpetrator's place of work. Nonetheless, this finding does not negate the behaviors listed as possible insider threat indicators. The data still supports that workplace mass shooters show signs of being in crisis before their attack. These signs as potential insider threat behavioral indicators could be compulsive, self-destructive, or even high-risk behaviors. These all fall into categories of insider threat indicators, as listed by the Center for Development and Security Education (2021). An individual who is experiencing a crisis may begin to exhibit some of these behavioral indicators as a result of their burden being undertaken because of this crisis. The evidence of many workplace mass shooters having experienced a crisis before their shooting supports the notion that insider threats exhibit behavior resembling

experiencing a crisis leading up to their attack because of the behavior that could be associated with someone being in crisis.

Overall, when analyzing the results of the bivariate analysis for the perpetrator's outcome for each attack, more perpetrators died on the scene than were arrested. Eighty-four total perpetrators in this data set died at the scene of their crime, whether by their hand or by the police. Of the attacks at a workplace, sixty-five percent of the perpetrators died at the scene. Similarly, fifty-seven percent of the non-workplace perpetrators died on the scene. This finding means workplace shooters were more likely than non-workplace shooters to die on the scene.

Analyzing the outcome of the perpetrator allowed the data to show if there was a statistical difference between workplace and non-workplace shooters. The data showed that workplace and non-workplace shooters were more likely to die at the crime scene than be arrested. Nonetheless, the data also showed that more workplace shooters than non-workplace shooters died on the scene percentage-wise. Therefore, workplace mass shooters are more likely than other mass shooters to die on the scene than be arrested.

Finding that workplace mass shooters are more likely than not to die at the crime scene aligns with behaviors listed as potential insider threat indicators. Behaviors such as self-destructive behavior, but also emotional or mental instability, and self-harm could all be evidence of an individual's troubled mindset when preparing to take their own life at the scene of their crime. These are also potential indicators for insider threats listed by the Center for Development and Security Education (2021). Previous research found that around fifty percent of all mass shooters died at the scene of the crime, whether by suicide or suicide by cop (Lankford, 2013). Previous literature findings are similar to those here; however, the previous research did not separate the outcomes by workplace versus non-workplace environments.

Therefore, this finding supports existing literature and training designed to inform individuals of potential insider threats while addressing the additional variable of workplace versus other locations.

Adding to the insider threat indication, the high percentage of perpetrators dying at the scene of their crime supports the notion that their motivation is seen as more important than their own life. This lack of importance placed on their own life also provides insight into the perpetrator's mindset before the attack. The event ending in the perpetrator's death could be evidence that the attack was not a result of a “snap” where the individual briefly flew into a rage, but instead that the motivation for the shooting was all-encompassing for the individual. They saw no out of their plans; there was no other way. This mindset lends itself to the idea that the perpetrator would show signs before their attack. When an individual is consumed by one emotion or cause, others around them will likely take notice.

However, for both workplace and non-workplace mass shootings, it was found that perpetrators were less likely to show signs of leakage before the attack. In non-workplace shootings, fifty-four percent of shootings did not show signs of the perpetrator revealing their intentions before the shooting. In instances of workplace shootings, fifty-six percent did not reveal their plan beforehand. The likelihood of revealing plans before the attack was highly comparable in the workplace and non-workplace attacks.

The findings showed that workplace shooters are less likely to disclose their plans before the attack. This finding is also factual for non-workplace shootings. However, the percentages of leakage to no signs of leakage are close in both groups, at around fifty. Thus, it is shown that many mass shooters do reveal their plans before the attack. About forty-five percent of the shootings total had a perpetrator who leaked information to a third party with the intent to harm

others. That means there was at least one non-disputable warning of the intent of the perpetrator to do harm in forty-five percent of the shootings. In workplace shootings, forty-four percent of the perpetrators revealed their plans beforehand.

The findings of leakage present in workplace mass shootings do not show that the shooters were more likely to leak information. However, a large portion of them still did reveal their plans beforehand. This finding shows there is a presence of this insider threat indicator in workplace mass shooters. Forty-four percent of workplace mass shooters show this insider threat indicator without even having to evaluate the other variables. However, this finding does not align with other research that found that over half of their workplace mass shooters threatened their target directly before the attack (Capellan et al., 2019). This means that prior research found a higher percentage of perpetrators revealed their plans before the attack, which would more closely support the presence of an insider threat indicator. This difference in findings could be present for several reasons: a change in the data discussed or because of the multiple chances for human error.

When analyzing data on leakage by perpetrators, there could be several issues skewing the results. One reason could be that the research previously discussed was published in 2019 but covered mass shootings from 1966 to 2017; therefore, the pool of mass shooters has grown and changed since then. This change in time and dataset could affect the outcome of percentages of mass shooters with leakage. Additionally, there could be a source error for this finding. If the researchers used different sources to find proof of leakage, the open-source use of sources like newspapers or television interviews could affect the information found.

Further, a variable like leakage has ample room for human error. Individuals may not be willing to expose themselves and tell others that they knew a coworker had a plan to attack their

workplace, yet they said nothing. A feeling of responsibility could be present in individuals who were the receivers of the perpetrator's leakage. They could feel guilty for what happened, even though it is entirely not their fault. Thus, the number of perpetrators who leaked information could be higher than reported. The presence of leakage before the attack being higher than reported could be especially true in a workplace because individuals may not want to be held liable at their job for the actions of others, even if that would be through social disapproval. The individuals could risk being looked at differently by their coworkers because they did not report what they knew before the attack. Additionally, when someone acts in a way that is not accepted by society, especially if it is violent, others typically distance themselves from that person. Therefore, the people who were aware of the leakage before the attack may not want to report it after the fact because they do not want their name or reputation associated with the perpetrator. This could be even more true with recent mass shootings than it was with the study that ended with perpetrators in 2017 as society holds people more responsible for their actions now than ever before. People who know about the attack beforehand but did not report could be afraid of becoming a victim of criticism on a wider scale than ever before with the presence of social media in essentially every news story.

The bivariate analysis examining the presence of a stressor showed that both workplace and non-workplace mass shooting attackers were more likely than not to experience a stressor before the event. For non-workplace shootings, fifty-seven percent of the perpetrators showed signs of a stressor being present. In workplace shootings, seventy-seven percent showed they experienced a stressor before the attack. This finding means that workplace attackers were much more likely than other mass shooters to have experienced a stressor leading to their attack.

The presence of a stressor before the attack was found to be more common than not in perpetrators of mass shootings. This result is especially true in workplace mass shootings. Over two-thirds of the sample of workplace mass shooters showed to have experienced either a real or perceived stressor before their shooting. These stressors could look like a break-up, an issue at work, troubles with money, conflict in their family, legal issues, or other stressors an individual may face throughout life (Peterson & Densely, 2022). This stressor could be tied to the individual's motive for the attack. Everyone faces stress in life, but not everyone handles stress in the same way. Therefore, this stressor could be the motivation that causes the perpetrator to carry out their mass shooting. However, it is important to note that there are most likely underlying issues in an individual if they experience a stressor and immediately turn to mass shootings as the response. An individual who does not have these tendencies or behavioral traits will not go on a shooting rampage simply because they have a stressful day at work. Mass shootings are more likely the result of a build-up of situations and reasons that caused the perpetrator to behave this way.

This research shows that workplace mass shooters are more likely than other mass shooters to experience a stressor before committing mass murder. Prior research has found that an indicator of a mass shooting can be the perpetrator experiencing an adverse event (Capellan et al., 2019). The results here support that notion found in prior research since both workplace and non-workplace mass shooters showed that the majority experienced a stressor before the shooting. This finding also aligns with the pathway to violence the Federal Bureau of Investigation created. The first step in the pathway to violence is grievance (Center for Development and Security Education, 2021). It could be seen that a stressor or adverse event is this grievance. Therefore, experiencing this stressor could have been the first step on each of

these perpetrators' pathways to violence. Additionally, it is important to note that the pathway to violence created by the Federal Bureau of Investigation is set to always begin with a grievance. Thus, there is perceived to always be a grievance felt by the perpetrator; it may not always be labeled a "stressor," but perfectly happy people with no stress typically do not commit acts of violence.

Additionally, the presence of stress in the workplace has been shown to increase levels of violence in that environment (Johnson & Indvik, 1996). This sample of workplace mass shooters will likely have experienced a work-related stressor before their attack. The likelihood of the stressor coming from their workplace is shown by the fact that their workplace was the chosen target location. If their stressor was sourced elsewhere, it is reasonable to believe that their attack would have been carried out elsewhere. Often, the location of the attack is the place that is the object of stress or rage for the perpetrator. Therefore, these workplace mass shooters who experienced a stressor before their attack showed signs of insider threat behavior and supported previous literature on general and workplace violence.

When analyzing the difference in victim counts for workplace and non-workplace attacks, it was found that both have more instances of victim counts closer to the marker of four. This marker of four comes from the definition of a mass shooting used in this research. The definition of a mass shooting used in this research is "...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)”(Peterson & Densely, 2022, p. 1). However, non-workplace mass shootings reached victim counts as high as almost sixty, while workplace attacks did not even reach twenty. Therefore, non-workplace mass shootings are more likely to have a higher victim count than workplace mass shootings. However, extreme victim counts, like those close to sixty, are the outliers regardless of environment.

Workplace mass shooters showed more victim counts around four for their group than the other mass shooters. The highest victim count for workplace shootings was less than twenty victims. For non-workplace mass shootings, the highest victim count was almost sixty. Therefore, the range for victim count in workplace mass shootings is only about fifteen, while the range for victim count in non-workplace mass shootings is about fifty-six. This difference in range shows the vast difference in victim counts seen in mass shootings based on the location of the attack.

The typically lower victim count in workplace mass shootings could result from several explanations. One explanation could be that workplace mass shootings are often thought to be motivated by revenge (Kowalski et al., 2021). Therefore, the perpetrator is more likely to attack their specific victim or victims fueled by revenge. This motivation would differ from mass shooters who are motivated by terror or ideology and want to create as many victims as possible to spread their message. Further, workplace shootings are thought to be more victim-specific as discussed previously. Victim-specific attacks lead to lower victim counts as the goal is most likely not to take as many lives as possible, like with other mass shootings. The goal is to terminate the one victim or the few victims who are the objects of the perpetrator's attention. Another explanation could be that workplaces are rarely open like other public places. Office spaces are often more closed off and separated by rooms, doors, or cubicles. For example, it

would be easier for a perpetrator in a public park to claim many victims quickly because of the open space. The ease of attack would not be the same in a workplace. Also, people do not have as many places to hide in an open space as in a public park. Therefore, perpetrators would likely take longer to claim the same number of victims in an office setting. Individuals would have more time to get away or for police to arrive, and likely fewer lives would be taken.

The lower victim count could also align with some behaviors associated with insider threat indicators. Indicators such as disruptive or violent behavior and physical aggression could all be associated with lower victim counts and victim-specific attacks (Center for Development and Security Education, 2021). Negative interpersonal interactions could lead to resentment and the perpetrator identifying their victim based on that interaction. Threats or confrontations in the workplace could also show a victim-specific mindset if there is a focus on the attacker's threats. These two events are likely connected if someone threatens or confronts someone before the workplace shooting. The confrontations or violent behavior are indicators of the further victimization that is to come. Additionally, having an object of an employee's violent behavior or physical aggression could indicate that the perpetrator has a specific victim in mind. Showing signs of violence or physical aggression are not typical in a workplace and could, therefore, be signs of more insidious intentions by the individual.

Further, individuals who associate or side with the individual who is the object of the perpetrator's rage could be putting themselves at risk and could end up being the additional victims. If the office supports the individual, or even if the perpetrator just feels the other individual is receiving more support, this could further motivate the perpetrator to carry out their attack. If an individual begins by feeling wronged by just one coworker but then feels as if the whole office has turned against them, it would support the notion that the perpetrator is carrying

out revenge and is targeting those they feel have wronged them the most. This risk of being “guilty by association” highlights the importance of taking note of and reporting insider threat indicators, especially ones like this. Even individuals who have not directly confronted or had altercations with the potential perpetrator may be at risk because of the office dynamics. One cannot assume they are safe simply because they have not directly interacted with the individual the office sees as a risk.

It is also important to note the chances of overlap between these variables. The presence of a stressor and signs of being in crisis are more obvious as both fall under the category of a stressor. However, the overlap is not as blatant in the other cases but should be highlighted. For perpetrators with a victim count close to four, it is likely that this individual was seeking revenge through their attack. It is then possible that the motivation for their revenge could have been considered a stressor by the individual and thus they showed signs of being in crisis before the attack. This could have also led the individual to leak their plans before the shooting and even take their own life because they felt as if no one was on their side. While the results were not the same for each of these variables, there is a heavy chance for overlap in the behavior of the perpetrators. One behavior could very easily lead to another discussed here.

Multivariate Regression

The multivariate regression analyzed the workplace variable as the dependent variable with crisis present, signs of a stressor, victim count, leakage, and the outcome of the perpetrator as the independent variables. In the regression, the presence of a stressor and sign of being in crisis were both found to be statistically significant. This result means that while holding all other variables constant, a change in a crisis or signs of a stressor would cause a significant change in the workplace variable. The other independent variables were shown to be statistically

insignificant and would, therefore, not have a significant change in the workplace variable. This multivariate regression attempted to use these listed independent variables to explain the workplace variable. Because of this, one can understand why these variables would not be statistically significant, as these variables are not intended to explain why the shooting occurred at a workplace.

The results of the multivariate regression support the connection of the workplace variable with both signs of a stressor and signs of being in crisis before the shooting. This statistical significance supports that workplace shooters often show these behavioral indicators of being in a crisis or under stress before their attack. These findings also support the correlation found in the binary analyses discussed previously. The other independent variables being not statistically significant means that these variables cannot predict the likelihood of the workplace variable being present. Therefore, victim count, leakage, and the perpetrator's outcome cannot predict if a shooting is more likely at a workplace over a different location based on each change.

The multivariate regression for this data has several implications. First, the findings show that three of the five independent variables cannot be used to predict workplace shootings. This finding is not a surprise as there is much overlap between the different types of mass shootings. The behavioral indicators of the shooter before the attack are not meant to predict where the shooting will occur but rather that a shooting will occur at all. Insider threat indicators are meant to be used in a workplace; therefore, the attack's location is evident because of the specific scenario being discussed. Thus, these behaviors are not meant to predict where but what will occur. An act of violence is being predicted, not that the act of violence will be in a specific place because that location is being assumed, seeing that the predictors are being used at a workplace.

This concept is also supported by the findings of the root means square error and the R-squared. These variables show that the listed independent variables do not explain the attack at the workplace over a different location. The reason for the location of the attack would have to be explained by the specifics of each attack and why the perpetrator chose that location, not by the variables discussed here. This choice in location could be heavily related to the motivation for the attack, which is much more challenging to discuss and research because of the lack of this information in so many cases. After the shootings, the motivation for the attack is not always identified. This lack of identifying the motivation could be a result of so many perpetrators dying on the scene or the unwillingness of perpetrators to talk after the shooting. Ultimately, it is shown not that these variables can predict the likelihood of a shooting being in a particular environment but that the specific scenarios and variables shown increase the likelihood of a workplace mass shooting. Fortunately, the perpetrator's motivation does not have to be fully understood to understand the behavioral indicators of insider threats. Instead, it is the behavior being exhibited that is important, and that can be monitored.

Limitations

There are several limitations to this data source and research. With open-source data, there are always chances of incorrect or incomplete information. The media may not fully and accurately cover a mass shooting so that all the details are recorded without a mistake. Therefore, there may be inaccurate details in the information for each shooting. Without the police report of every mass shooting at the researcher's disposal, conducting this research without some human or open-source error would be impossible. Even with the police report files in hand, there would still be chances for error as these files are written by police officers who can also leave out or incorrectly report details in the case.

Additionally, the mass shootings on the database go back to only 1966 and occur solely in the United States. Therefore, the discussions in this research focus exclusively on modern, US-based mass shootings. Thus, the findings may only apply to that same environment. The findings are applicable to only a limited group. Lastly, statistically speaking, workplace mass shootings do not produce as many data points as other types of crime. Therefore, the research is limited in the extent of analysis that can take place because of the limited data points.

It is essential to continue this kind of research to combat these limitations. Using multiple data sources and sample groups will allow more generalizations in this research subject. Drawing from different data sources to combine information ensures the highest likelihood of correct and complete information from open-source data. Additionally, using exact police reports for each case could lessen errors present because of human error in collecting this information. Further, adding additional mass shootings to the data would ensure more complete results. For example, one could add more recent shootings than those from 1966 to 2022 or expand the geographic location to shootings outside the United States. Expanding the data pool could provide more information on modern-day society in the United States or even more globally. It would also provide additional data points for a limited sample size. This research has one-hundred ninety data points of mass shootings, and fifty-eight are workplace mass shootings. Therefore, this research has limited data points because of the limited occurrences of mass shootings in the United States compared to other types of crimes.

This kind of research could also be applied to non-mass shootings that occur in a workplace. The behavioral indicators associated with insider threats are not limited to only mass shootings. The cases of workplace shootings where the victim count is lower than four could also provide insight to ensure the most complete understanding of workplace violence and insider

threats. Including these occurrences would also increase the amount of data available to be analyzed. The number of workplace shootings that have a victim count of less than four far surpasses the workplace mass shootings discussed in this research. However, there are limited resources available on this topic, thus identifying another gap in the literature to be explored.

Conclusion

On February 17, 1988, Richard Wade Farley killed seven of his coworkers in less than thirty minutes at their place of work (Mathews, 1988). Farley was fired from his position at that company in 1986 for sexual harassment charges. The woman who spurned his advances was shot that day but luckily survived (Mathews, 1988). Farley told the police during a five-hour wait out that he was in mountains of debt and had recently lost his house. Richard Wade Farley blamed losing his job for all this (Mathews, 1988). This research defines a mass shooting as a shooting that takes place in a public location where at least four victims die from a firearm wound that cannot be attributed to any other criminal activity. Further, an insider threat is a current or former employee that damages their workplace or the people in it. Richard Wade Farley is an example of an insider threat and workplace mass shooter. He showed indicators of experiencing a stressor, signs of being in crisis, and other behavioral indicators of an insider threat. Knowing these two definitions and what they look like allows for comparing workplace mass shooters to insider threats. The behavior of workplace mass shooters mimics some of the behavioral indicators of insider threats. Therefore, workplace mass shooters are examples of insider threats. This notion changes the discussion around both mass shootings and insider threats, and as previously discussed, this overlap has been left out of many conversations.

This research aimed to support the proposition that a workplace mass shooter is an insider threat. Through quantitative analyses, the behavioral indicators of being in a crisis, showing signs of a stressor, tending toward victim-specific targeting, and dying at the crime scene supported this notion. These variables were chosen because of existing literature on mass shooters and insider threats. The presence of being in a crisis and exhibiting signs of a stressor,

which are also possible insider threat behaviors, were found to be present in workplace mass shooters more often than not.

Further, the lower victim count shown in workplace mass shootings than in other mass shootings lends support to insider threat indicators. Lastly, workplace mass shooters were found to be more likely to die at the scene of the crime than to be arrested. Both findings align with potential behavior indicators of insider threats such as emotional or mental instability and compulsive, self-destructive, or risky behaviors (Center for Development of Security Education, 2021). When analyzing the leakage variable, it was found that it was not more likely for workplace mass shooters to disclose their plans before the attack. This finding could result from underreporting from colleagues before and after the shooting. It could also result from issues with reporting in the data set due to using open-source information.

As previously discussed, there needs to be more current research on workplace shooters in both mass shooter and insider threat-focused research. Workplace shooters are often either left out entirely or pushed out of the main focus of the work. Therefore, this overlying gap allows for the questions proposed here to be created and answered. It is not enough to allude to the topic, but a complete understanding is required to work toward a solution to lessen these attacks. This topic needs to be researched and discussed more heavily for that very reason. A framework to decrease workplace mass shootings will only be identified by knowing more about these attacks. This research is significant for entities with insider threat programs and all places of business that want to educate their employees on keeping themselves and others safe. The significance of this research must be considered in potentially beginning to close a gap in the literature and work towards updating insider threat and mass shooter research.

Future research should address the limitations discussed in this research while expanding and replicating the results. More information and analysis are needed to better understand the phenomena of workplace mass shootings. Additionally, drawing further parallels between the behavior of workplace mass shooters and insider threats would encourage individuals discussing insider threats to bring workplace shooters into the discussion. Insider threat training does a disservice to its customers when it does not inform individuals of the risks associated with behavioral indicators of a possible workplace attack. Educating individuals on potential insider threat behaviors can only benefit from adding information on workplace mass shooters. Therefore, additional research is needed to help provide this information.

References

- Alhajjar, Elie and Taylor Bradley. "Survival Analysis for Insider Threat." *Social Cybersecurity in Times of Crisis – Computation and Mathematical Organization Theory*. July 17, 2021. <https://doi.org/10.1007/s10588-021-09341-0>
- Anisin, Alexei. "A Configurational Analysis of 44 U.S. Mass Shootings: 1975–2015." *International Journal of Comparative and Applied Criminal Justice*, vol. 42, no. 1, 2016, pp. 55–73. <https://doi.org/10.1080/01924036.2016.1233444>.
- Becker, D.E., Frank Greitzer, Yung Mei Leong, and Justin Purl. "SOFIT: Sociotechnical and organizational factors for insider threat." 2018 IEEE Symposium on Security and Privacy Workshops. 2018. DOI 10.1109/SPW.2018.00035
- Bishop, Matt & Carrie Gates. "Defining the Insider Threat." CSIIRW'08, May 12-14. Oak Ridge, Tennessee, USA.
- Bradley, Petra, Wendy Chambers, Cory Davenport, Lelyn Saner. "A National Research Agenda on Insider Threat." The University of Maryland. 2017.
- Bushman, Brad J. "Narcissism, Fame Seeking, and Mass Shootings." *American Behavioral Scientist*, vol. 62, no. 2, 2017, pp. 229–241. <https://doi.org/10.1177/0002764217739660>.
- Doucette, Mitchell L., et al. "Workplace Homicides Committed by Firearm: Recent Trends and

Narrative Text Analysis.” *Injury Epidemiology*, vol. 6, no. 1, 2019,

<https://doi.org/10.1186/s40621-019-0184-0>.

Capellan, Joel, Joseph Johnson, Jeremy Porter, and Christine Martin. "Disaggregating Mass

Public Shootings: A Comparative Analysis of Disgruntled Employee, School,

Ideologically Motivated, and Rampage Shooters." *Journal of Forensic Sciences*. May

2019. Volume 64 Number 3. doi: 10.1111/1556-4029.13985

Capellan, Joel A., and Simon Peter Gomez. “Change and Stability in Offender, Behaviors, and

Incident-Level Characteristics of Mass Public Shootings in the United States, 1984-

2015." *Journal of Investigative Psychology and Offender Profiling*, vol. 15, no. 1, 2017,

pp. 51–72. <https://doi.org/10.1002/jip.1491>.

Center for Development and Security Education. “Insider Threat Potential Risk Indicators.”

2021.

Center for Development of Security Excellence. “Insider Threat Job Aid – Potential Risk

Indicators: Active Shooters and the Pathway to Violence.”

Duwe, Grant. “Patterns and Prevalence of Lethal Mass Violence.” *Criminology and Public*

Policy. 2020:19:17-35.

Ellsworth, Ashley, et al. “The Occupational Impact of Mass Shootings: A Qualitative Study of

Survivor Accounts." *The Open Journal of Occupational Therapy*, vol. 10, no. 4, 2022, pp. 1–13. <https://doi.org/10.15453/2168-6408.1965>.

Fox, James Alan, and Jack Levin. "Explaining Mass Shootings." *The Wiley Handbook of the Psychology of Mass Shootings*, Wiley-Blackwell, Malden (Mass.), 2017, pp. 36–55.

"Insider Threat Program - United States Department of State." U.S. Department of State, 2023, www.state.gov/insider-threat-program/.

Johnson, Pamela & Julie Indvik. "Stress and Violence in the Workplace." *Employee Counselling Today*. Volume 8: Number 1. 1996.

Kowalski, Robin Marie, et al. "K-12, College/University, and Mass Shootings: Similarities and Differences." *The Journal of Social Psychology*, vol. 161, no. 6, 2021, pp. 753–778. <https://doi.org/10.1080/00224545.2021.1900047>.

Lankford, Adam. "A Comparative Analysis of Suicide Terrorists and Rampage, Workplace, and School Shooters in the United States from 1990 to 2010." Sage Publications. 2012.

Lankford, Adam. "Mass Shooters in the USA, 1966–2010: Differences between Attackers Who Live and Die." *Justice Quarterly*, vol. 32, no. 2, 2013, pp. 360–379. <https://doi.org/10.1080/07418825.2013.806675>.

Lankford, Adam, and Jason R. Silva. "The Timing of Opportunities to Prevent Mass Shootings:

A Study of Mental Health Contacts, Work and School Problems, and Firearms Acquisition." *International Review of Psychiatry*, vol. 33, no. 7, 2021, pp. 638–652.
<https://doi.org/10.1080/09540261.2021.1932440>.

Mathews, Jay. "Sudden Death in Sunnyville." *The Washington Post*. February 18, 1988.

Mundie, David, Sam Perl, and Carly Huth. "Toward an Ontology for Insider Threat Research: Varieties of Insider Threat Definitions." 2013 Third Workshop on Sociotechnical Aspects in Security and Trust. 2013. DOI 10.1109/STAST.2013.14

Pearson. "Going Postal – Meaning, Origin and Usage." *English*, November 2, 2022,
<https://english-grammar-lessons.com/going-postal-meaning/>.

Peterson, J. & James Densley. (2022a). "Mass Shooting Data & Research." *The Violence Project*. Retrieved November 5, 2023 (<https://www.theviolenceproject.org/>).

Peterson, J., & James Densley. (2022b). The Violence Project database of mass shootings in the United States (Version 6). <https://www.theviolenceproject.org>

Romano, S. J., Levi-Minzi, M., Rugala, E. A., & Van Hasselt, V. B. (2011). Workplace violence prevention: readiness and response. *FBI Law Enforcement Bulletin*, 80(1), 1-10.

Sal. "The Chilling Story Behind the Deadliest Mass Shooting in Louisville, Kentucky." *Lessons from History*. August 5, 2021.

Schildkraut, Jaclyn. "Can Mass Shootings be Stopped? To Address the Problem, We Must Better

Understand the Phenomenon.” Policy Brief Regional Gun Violence Research Consortium. July 2021.

Schildkraut, Jaclyn, Jeff Gruenewald, Mia Gilliam & Megan Novak. "Framing mass shootings as a social problem: A Comparison of Ideologically and Non-ideologically motivated attacks." *Aggressive and Violent Behavior*. November 28, 2020.

<https://doi.org/10.1016/j.avb.2020.101533>

Shaw, Eric, Maria Payri, Michael Cohn, Ilene R. Shaw. “How Often is Employee Anger an Insider Risk I? Detecting and Measuring Negative Sentiment versus Insider Risk in Digital Communications.” *Journal of Digital Forensics, Security and Law*. Volume 8: Number 1, Article 3. 2013.

Shaw, Eric; Payri, Maria; Cohn, Michael; and Shaw, Ilene R. "How Often Is Employee Anger an Insider Risk II? Detecting and Measuring Negative Sentiment versus Insider Risk in Digital Communications—Comparison between Human Raters and Psycholinguistic Software," *Journal of Digital Forensics, Security and Law*: Vol. 8: No. 2, Article 3. 2013.

Silva, Jason R. “Mass Shooting Films: Myths, Academic Knowledge, and Popular Criminology.” *Victims & Offenders*, vol. 14, no. 2, 2019, pp. 239–264.
<https://doi.org/10.1080/15564886.2019.1580232>.

Silva, Jason R., and Joel A. Capellan. “The Media’s Coverage of Mass Public Shootings in

America: Fifty Years of Newsworthiness." *International Journal of Comparative and Applied Criminal Justice*, vol. 43, no. 1, 2018, pp. 77–97.

<https://doi.org/10.1080/01924036.2018.1437458>.

Silva, Jason. "A comparative analysis of foiled and completed mass shootings." *America Journal of Criminal Justice*. July 11, 2020. 46:187–208. [https://doi.org/10.1007/s12103-020-](https://doi.org/10.1007/s12103-020-09552-2)

09552-2.

Silva, Jason. "Global mass shootings: comparing the United States against developed and developing countries." *International Journal of Comparative and Applied Criminal Justice*. 2022.

Silva, Jason R., and Emily Ann Greene-Colozzi. "Mass Shootings and Routine Activities Theory: The Impact of Motivation, Target Suitability, and Capable Guardianship on Fatalities and Injuries." *Victims & Offenders*, vol. 16, no. 4, 2020, pp. 565–586. <https://doi.org/10.1080/15564886.2020.1823919>.

Silva, Jason R., et al. "Gender-Based Mass Shootings: An Examination of Attacks Motivated by Grievances against Women." *Violence Against Women*, vol. 27, no. 12-13, 2021, pp. 2163–2186. <https://doi.org/10.1177/1077801220981154>.

Tewksbury, R., & Elizabeth Ehrhardt Mustaine. (2010). "Cohen, Lawrence E., and Marcus K. Felson: Routine Activity Theory." *Encyclopedia of Criminological Theory* 187–93.

Travnick, Janice. "Averting Workplace Violence." Risk Management. 41, 5. May 1994.

Wandler, Deann. "Workplace Violence: It's More Common than You Think (2 in 2 Part Series)."

Britt Andreatta, Center for Applied Learning, April 29, 2021,

<https://www.brittandreatta.com/workplace-violence-its-more-common-than-you-think-2-in-2-part-series/>.