ACTIVE SHOOTER DRILLS IN SCHOOLS ACROSS THE UNITED STATES

By

Barbara Slater

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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APPROVED BY:

Pamela Moore, Ph.D., C Chair

Lacey Ricks, Ph.D., Member

ABSTRACT

This study sought to understand the types of drills and safety measures implemented at various schools across the United States and the effects of these drills and safety measures on the participants. The physical and psychological impacts these drills and safety measures have on participants has not been thoroughly researched. Researcher utilized a self-designed online survey with questions that corresponded with the research questions and answered by 297 participants to provide the data and answer the research questions. Schools across the United States conduct active shooter drills to prepare students and school personnel for an active shooter crisis in their schools. The types of drills utilized vary dramatically across different schools and run the gamut from safety discussions to full-scale simulations. Schools across the United States also implement various safety measures including metal detectors, locked doors, resource officers, and armed teachers. It is unknown if any pattern exists related to a school's demographics and the type of active shooter drills they conduct and safety measures they implement.

Keywords: active shooter drills, lockdown drills, school safety measures, mental health of school personnel.

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List of Abbreviations

Alert, Lockdown, Inform, Counter, Evacuate (ALICE)

Emergency Operations Plans (EOPs)

Presidential Policy Directive (PPD)

Protection Motivation Theory (PMT)

School Resource Officer (SRO)

CHAPTER ONE: INTRODUCTION

Overview

Active shooter drills take place on a nearly daily basis in schools across the United States; however, these drills vary in form and frequency (Schildkraut & Nickerson, 2020). This chapter will explore the history and evolution of these drills, as well as describe their present implementation. The social implications of performing these drills will be discussed, and a connection will be made between active shooter drills and a psychological theory. The researcher will also note the gaps in the research leading to the reason for this study.

Background

Students have been participating in safety drills in schools since the 1950s. As early as preschool, fire safety students are taught through school-wide fire drills conducted monthly that are mandated by law. Students also participate in severe weather drills, learning where to go and what to do in case of threatening weather. Currently, 95% of schools nationwide also participate in some type of active shooter drill (Vail, 2022).

Active shooter drills range from the traditional lockdown drill to multi-response drills and simulations. The traditional lockdown drill involves classrooms being locked with lights turned off and students and teachers quietly hiding inside. In a multi-response drill, students are given options such as running to evacuate the building, hiding in a safe place, or, in some cases, fighting back against the attacker. Multi-response drills include mantras such as Run, Hide, Fight, Avoid, Deny, Defend and A.L.I.C.E. an acronym for Alert, Lockdown, Inform, Counter, Evacuate. An active shooter drill can also be conducted as a simulation where someone pretends to be the perpetrator and moves throughout the school pretending to shoot students and teachers (Henry, 2015).

In addition to the various types of active shooter drills conducted in school across the United States, other safety measures are also in place. These safety measures may include the use of metal detectors, school resource officers, locked classroom doors, and armed teachers and staff. Although federal data indicated an increase in active shooter drills (Blad, 2018), the types of active shooter drills under implementation in different schools across the country is unknown (Vail, 2022). Research concerning the effectiveness of these drills and other safety measures, as well as the effects these drills have on participants is limited (Gerlinger & Schleifer, 2021). This current study sought to understand types of active shooter drills are being conducted and other safety measures implemented in a variety of different schools across the United States.

Historical Context

The most familiar type of drill is the traditional lockdown that originated in the 1970s in Southern California (Henry, 2015). This specific tactic was developed in response to drive-by shootings and street level crime that occurred outside school buildings. The drills were even originally referred to as "drive-by drills." The focus of the traditional lockdown was to "secure in place" (Henry, 2015). Students and teachers were to lock the doors, close the curtains, and stay away from the doors and windows. Evacuation of the building was not a consideration because the crime was happening outside of the school (Henry, 2015).

The necessity of active shooter drills became more evident, however, as the threat moved inside the building. On April 20, 1999, two students committed unprecedented acts of violence in Columbine High School, located in a middle-class suburb of Denver, Colorado. The shooting began in the school's cafeteria and moved to the library where most of the fatalities occurred. At the time, this was the deadliest attack to occur on a school campus (Hawkins et al., 2004). The attack resulted in 15 deaths and over 20 people sustained injuries.

Many adults remember a world before the Columbine school shootings, but today's students do not (Vail, 2022). Over the past 20 years, school shootings have increased, and schools have become places where fatal and non-fatal crimes occur. Mass shootings, gang activity, sexual assaults, and robberies are part of a new normal (Liu et al., 2015). During the Democratic 2020 primaries, mayor and presidential candidate Buttigieg referenced being part of the first generation where school shootings have become commonplace compared to a second generation where these events have become an expected part of school life (Vuori, 2021). During the 2020-2021 school year alone there were 145 documented instances where someone brandished or fired a weapon on a school campus in the United States (Ritchie, 2023).

Unfortunately, Columbine was not an isolated incident, and additional school shootings reinforce the need for a more comprehensive look at the necessary responses inside the building. Some of the most heinous acts are easy to recall as the world watched the destruction unfold. On December 10, 2012, a school shooter killed 20 children and six adults, including the school principal and a school psychologist at Sandy Hook Elementary School in Newton, Connecticut. The 20 children killed were between the ages of six and seven (Aradillas et al., 2012). On February 14, 2018, a former student killed 17 people and injured 17 others at Marjory Stoneman Douglas High School in Parkland, Florida (Blad & Herold, 2019). On May 24, 2022, a school shooter took the lives of 19 children and two teachers on the campus of Robb Elementary school in Uvalde, Texas (Jowarder, 2022).

In response to these high-profile school shootings, a nationwide increase in state-mandated school safety drills has occurred. In addition to the traditional lockdown drill, the U.S. Department of Education introduced multi-option response drills (Eckhoff & Goodman-Scott, 2021). Multi-option response drills, often given the blanket term "active shooter drills," can

range from being simply information-based with students receiving instructions on safety procedures to being action-based with students practicing the procedures with law enforcement present and simulations taking place (Gerlinger & Schleifer, 2021). Multi-option drills, use memorable mantras such as Run, Hide, Fight; Avoid, Deny, Defend and A.L.I.C.E. to train students to flee the area, hide, actively resist, or distract the assailant (Schildkraut & Nickerson, 2020).

The U.S. Department of Education also published *The Guide for Developing High-Quality School Emergency Operations Plans*. The purpose of this guide was to help schools form planning teams to develop and revise their Emergency Operations Plans (EOPs) and ensure that the EOPs aligned with national, state, and local level practices (*The Guide for Developing High-Quality School Emergency Operations Plans*, 2013). The group developing the guide for schools modeled its recommendation on the Presidential Policy Directive 8 (PPD-8), which was signed by President Obama in March, 2011. The five areas defining the PPD-8 include prevention, protection, mitigation, response, and recovery (The Guide for Developing High-Quality School Emergency Operations Plans, 2013). The guide presents the three options students and staff have when faced with an active shooter event: run, hide, or fight; however, it acknowledges that although students and staff are trained in their school's emergency operations plan, the best course of action may be using their best judgment to react in the safest way according to the situation they are facing (The Guide for Developing High-Quality School Emergency Operations Plans, 2013).

Preparation for emergency situations on a school campus is a necessity. Some level of training to prepare staff and students for a campus emergency does occur on school campuses throughout the United States. However, with more violence and school shootings occurring,

students and staff need to feel confident that they have some idea of what to do in the case of an active shooting event on their campus. Furthermore, individuals who become engaged with an active shooter must know how to effectively fight someone who has a weapon (Bruce et al., 2019). This study seeks to produce data that shows what type of training and preparation is being done to keep individuals safe at school.

Social Context

The emotional toll must also be considered in these events. Students and staff are faced with literal life-or-death decisions. Even those who were not near the shooter or who escaped are not free from the agony of fear and loss. According to a study completed by Hawkins et al. (2004), following the Columbine school shooting, an estimated 9,000 people or more including family members, community members, students, faculty, and staff members were at high-risk for psychological difficulties. Students interviewed after the attack expressed different emotions ranging from disbelief and confusion to panic and terror. They reported being given inaccurate information and being unsure of what to do. Parents interviewed after the attack expressed a loss of trust in schools to keep their children safe, experienced an overall lost sense of security, and felt more vulnerable (Hawkins et al., 2004). Both students and parents were fearful about returning to school (Jaymi et al., 2016). Similarly, Virginia Tech college students expressed more fear and had greater concerns for safety on their campus following the 2007 shooting (Jaymi et al., 2016). Survivors of the Sandy Hook school shooting faced a long road of recovery with many not wanting to go back to school (Aradillas et al., 2012). Student survivors of the Marjory Stoneman Douglas High School shooting have become activists launching a national movement, March for Our Lives, which supports gun-control legislation (Bourbon et al., 2018).

Due to the high-stress, high-stakes nature of the real event, school boards and administrators walk a fine line of making sure students and staff are prepared for a school emergency and not causing unnecessary anxiety (Blad, 2018). School principals realize that active shooter drills may have unintended consequences of instilling fear and psychological distress among participants (Burton, 2020), but they are tasked with making sure their students know what to do in case of an emergency (Brown, 2019). This has led to a dual perception of active shooter drills. These drills can be viewed as psychologically harmful when compared to the chance of a student actually being involved in a school shooting, or they can be viewed as influential in saving lives (Vuori, 2021).

Active shooter drills can be traumatizing for staff and students, especially if the participant has a history of trauma (Erbacher & Poland, 2019), and particularly terrifying to students who are already anxious (Williamson, 2019). In a study of the perceptions of principals who implement active shooter drills, they observed increased anxiety levels in staff and students (Burton, 2020). In some cases, active shooter drills can be as traumatic to students and teachers as real incidents (Schultz, 2016). An individual's personality, as well as any past traumatic experiences, may affect the physical and psychological impact that an active shooter drill may present (Schonfeld et al., 2020). Limited research exists on the impacts of active shooter drills on the participants (Burton, 2020). In order to determine best practices for implementing active shooter drills in schools, the impact these drills have on individual participants must be understood (Schildkraut et al., 2020). This study seeks to provide information on the physical and psychological impacts of active shooter drills on teachers, administrators, school counselors, and support staff at various schools across the United States.

Theoretical Context

Protection Motivation Theory

Protection Motivation Theory (PMT) can be used to understand an individual's behaviors when faced with a potentially dangerous situation (Floyd et al., 2000). The theory, developed by Rogers in 1975, consists of three components: a) the magnitude of noxiousness or level of harm, b) the probability of the event occurring, and c) the efficacy of the response. All three of these components are equally important with regard to affecting an individual's actions. An aspect of protection motivation theory is the appeal of fear. Fear can be an affective state to protect against danger. If the situation is deemed as dangerous, one takes protective action (Rogers, 1975).

Originally related to health behaviors, protection motivation theory has been expanded to include environmental concerns, political issues, and protecting others (Floyd, 2000) and can be applied to any dangerous situation where a recommended response is to be carried out. PMT can be applied to active shooter drills through the cognitive acknowledgement that an event is dangerous and likely to occur combined with the belief that the proposed preventative actions will be effective in preventing harm (Rogers, 1975). The desire of a student or staff member to participate in safety procedures and protocols is relative to the amount of protection motivation one has, based on the above-stated three components. PMT can also affect administrators and lawmakers as they choose to adopt particular safety practices, protocols, and procedures for active shooter drills (Rogers, 1975)

Ford and Frei (2016) further developed the components of PMT to include self-efficacy along with response efficacy. Self-efficacy is an individual's perceived ability to cope with a threatening situation which is directly related to the person's preparation and confidence of what to do in the event of an emergency. Response efficacy is the belief that taking the recommended

protective action will work in protecting oneself or others (Ford & Frei, 2016). Applying this to a school shooting scenario would be as follows: students and staff members have self-efficacy in knowing that they have trained and prepared for this possibility, and they feel response efficacy that the safety measures being taken will actually impact the outcome of the event. This belief provides individuals with the motivation to develop, comply with, and participate in active shooter drills.

Problem Statement

Howard et al. (2022) pointed out that in response to high profile school shootings, the implementation of active shooter drills in schools has increased. Public outcry calls for policymakers to pass legislation and mandate active shooter drills in schools often with little empirical research in regard to best practices (Howard et al., 2022). In response to this public outcry and to fulfill the mandated drill requirements, schools across the United States have implemented several types of drills with no national standard or understanding of which types of drills are under implementation in different areas and schools across the country.

The evaluation of the effectiveness of active shooter drills is limited due to different drills implemented in schools and students' perceptions of these drills varying among schools (Gerlinger & Schleifer, 2021). Federal data does show an increase in active shooter drills but does not distinguish between traditional lockdowns and multi-response drills (Blad, 2018). So much variability occurs both in the types of drills and where drills occur where (Vail, 2022). Some schools have security officers on campus and some do not, while some schools arm their teachers and others do not (Duff, 2020). No national standard for active shooter drills exists to mandate what types of drills should be done and the frequency with which they should occur (Schildkraut et al, 2020).

Evidence-based national guidelines are important as the effects of different types of active shooter drills are under analysis (Vail, 2022). The chairman of the state commission investigating the Parkland school shooting stated, “I don’t think it is resonated enough. If you take it seriously, why is there not, in every district in this country, a written, disseminated active-assailant response procedure that every staff member that’s employed by every district has been trained on?” (Blad & Herold, 2019, p. 8). In order to move toward a national standard for active shooter drills in schools, an understanding about the type, frequency, and the effects these drills have on participants in elementary, middle, and high schools across the United States is necessary.

Purpose Statement

The purpose of this quantitative descriptive design study was to provide an understanding of the active shooter drills implemented in various schools across the United States. The study examined the types of drills being conducted, the frequency of the drills, and other security measures used in public and private elementary, middle, and high schools, as well as the physical and psychological effects of these drills on administrators, staff, and faculty. The data were obtained through a survey created by the researcher.

Gathered through convenience sampling, participants answered questions about the types of active shooter drills conducted at their schools, other safety measures implemented, as well as the physical and psychological effects the individual has experienced related to participating in the active shooter drills. The data were analyzed to identify patterns and characteristics. Information obtained from this study may provide an understanding of active shooter drills and other safety measures implemented at various schools across the United States. This information may assist future researchers in determining best practices for keeping individuals safe at school.

Significance of the Study

This study aimed to provide insight into various aspects of active shooter drills, such as the type of drills implemented and the frequency of these drills. No national standard exists for active shooter drills that mandates the types of drills and the recommended frequency of these drills (Schildkraut et al., 2020). This study will provide information to understand the effects of the frequency of these drills. Participants of a study by Schildkraut et al. (2020) were more likely to feel prepared to respond to an emergency situation after participating in a second lockdown drill compared with the results of the survey prior to and after the first drill. Of note was the students' feelings of safety diminished with the continuing of the drills with students expressing more concern of the possibility of a shooting event occurring at their school (Schildkraut et al., 2020). Overuse of lockdown drills could potentially desensitize students to the serious nature of the procedures, but, in some cases, active shooter drills can be as traumatic as real incidents (Schultz, 2016). Additionally, the study sought to provide information on the physical and psychological effects these drills have on participants at various public and private elementary, middle, and high schools across the United States.

Data obtained from this study may benefit individual schools as they determine best practices relating to active shooter drills and their frequency as well as help schools develop trauma-informed practices. This study will provide other researchers in the field with information necessary to consider the relationship of variables relating to school safety, which can be helpful in moving toward a national standard of best practices for active shooter drills.

Research Questions

RQ1: What type of active shooter drills are conducted in various public and private elementary, middle, and high schools across the United States?

RQ2: What is the frequency of active shooter drills conducted in various public and private elementary, middle, and high schools across the United States?

RQ3: What security measures are being taken at various public and private elementary, middle, and high schools across the United States?

RQ4: What are the physical and psychological effects of active shooter drills on participants with comparisons by demographics across the United States?

Definitions

1. *Active shooter drills* - Drills conducted to prepare staff and students for an active shooter event. These drills can range from traditional lockdown drills, multi-response drills, or simulation drills (Vail, 2022).
2. *Lockdown drills* - Classroom doors are locked with teachers and students hiding quietly inside (Henry, 2015).
3. *Multi-Response drills* - Optional responses to an active shooter event practiced by teachers and students. Examples of multi-response drills include A.L.I.C.E.; Run, Hide, Fight; and Avoid, Deny, Defend (Henry, 2015).
4. *A.L.I.C.E* - a multi-response active shooter drill. The multi-responses include alert, lockdown, inform, confront, and evacuate (Blad, 2018).
5. *Protection motivation theory* (PMT) - a theory to understand individual's behaviors when faced with an unsafe situation developed by Rogers in 1975 (Floyd et al., 2022).
6. *School resource officers* (SRO) - career law enforcement officers assigned to work in schools. SROs were established by the Omnibus Crime Control and Safe Schools Act of 1968 (Layton & Gerstenblatt, 2022).

Summary

Although students have been participating in school safety drills since the 1950s, in recent years, schools have been mandated to conduct active shooter drills. Currently, 95% of schools nationwide participate in active shooter drills (Vail, 2022). There are different types of drills ranging from lockdowns to active shooter drills to realistic simulations. The increase in active shooter events in schools across the United States has caused an increase in these types of drills. The types of drills conducted vary dramatically across schools with no nationwide guidelines in place (Schildkraut et al., 2020).

Active shooter drills can have adverse psychological effects on students, teachers, administrators, and other staff members. Because of this, school officials and lawmakers walk the fine line of making sure students and school personnel are prepared for a crisis situation at their school without causing undo stress, anxiety, depression, or other psychological harm (Blad, 2018).

A theoretical perspective that can be considered for analyzing active shooter drills is protection motivation theory (PMT) which asserts that individuals will decide to follow safety recommendations based on the magnitude of the harm and the probability of the harm occurring, as well as the response efficacy (Rogers, 1975). This theory can be applied when looking at an individual's vulnerability to harm and when the actions presented in the safety procedures of the school will help them avoid the harm (Rogers, 1975).

The purpose of this quantitative descriptive design study was to understand what safety procedures are being implemented in various schools across the United States and to assess what physical and psychological effects may occur for the participants of these procedures. The participants in this study will be school personnel, including administrators, teachers, counselors,

and support staff at public and private elementary, middle, and high schools across the United States. The results of this study can be used to encourage future studies to determine best practices for all schools and more streamlined national guidelines concerning active shooter drills and other safety procedures related to active shooting events.

A review of the literature relating to active shooter drills and other safety measures being implemented in schools comprises the next chapter, which provides a detailed review of the scholastic research studies germane to the topic under study. Such studies include the different types of active shooter drills, the mandating of active shooter drills, impacts of the drills on participants, alternatives to active shooter drills, best practices for conducting the drills, and a review of other safety options schools have implemented.

CHAPTER TWO: LITERATURE REVIEW

Overview

Chapter Two begins with an explication of a theory that can be used to understand the motivation behind implementing and participating in active shooter drills in schools. Also explained are the types of active shooter drills, as well as the reasons and ways these drills are mandated. The review of literature also explores how a school's characteristics relate to the type and frequency of the active shooter drills conducted. The effects of active shooter drills on one's mental health and ways to balance fear and safety are examined in the existing research studies. Additionally, research has been conducted on alternatives to active shooter drills and the implementation of other safety measures at various schools as well as the perception and effectiveness of these other safety measures. This chapter concludes with an explanation of the gap in the literature concerning active shooter drills in schools leading to the purpose of this study. Although active shooter drills are mandated in schools across the United States, no national standard exists for the types and frequency of active shooter drills (Schildkraut et al., 2020). A lack of empirical research to determine the effects active shooter drills have on the people who are participating in them is also evident.

Theoretical Framework

Protection Motivation Theory

A salient theory to consider when looking at schools' preparedness for active shooter events is Protection Motivation Theory (PMT). This theory, developed by Rogers in 1975, helps to develop an understanding of how and why individuals respond in a crisis situation (Stock, 2022). PMT consists of three components: a) the magnitude of noxiousness or level of harm, b) the probability of the event occurring, and c) the efficacy of the response (Rogers, 1975). The

basis of PMT posits that fear appeals are effective to produce attitude change (Maddux & Rogers, 1983). Another way determine the components of PMT is to consider the probability of an event occurring combined with response efficacy and self-efficacy to prevent or limit the danger of the event (Maddux & Rogers, 1983).

The first two components of PMT can also be referred to as threat appraisal, which can be broken down into three parts: severity, vulnerability, and reward (Stock, 2022). Two types of factors make up an individual's appraisal of the threat: environmental factors and intrapersonal factors (Ford & Frei, 2016). Environmental factors include what someone has heard: media reports or personal stories from parents, teachers, or other students talking, and what they have observed: increased campus security such as SROs, metal detectors, and locked doors, or increased active shooter drills (Ford & Frei, 2016). Students and teachers may hear about a mass shooting at another school and examine their own school to determine safety procedures and resources (Stock, 2022). Intrapersonal factors include one's prior experiences with gun-related incidents or other traumatic events, knowing someone who has experienced a school shooting, and even an individual's own personality (Ford & Frei, 2016).

The third component of PMT, the efficacy of the response, can also be referred to as the coping appraisal, which considers the response efficacy, self-efficacy, and the response cost (Stock, 2022). Response efficacy is measured by how effective an individual deems the school's preparation and response to an active shooter to be. The perceived effectiveness helps to motivate students to protect themselves from feeling the emotion of fear that an event could occur at their school (Stock, 2022). Self-efficacy is an individual's expectancy of effectiveness combined with the person's ability to perform the behavior (Maddux & Rogers, 1983). The importance of the active shooter drills in this context is that they empower students and teachers

with the ability to do something about the threat of an active shooter event occurring at their school.

A research study by Ford and Frei (2022), found that individuals who are more concerned about their safety on their school's campus also felt more confident in their abilities to follow safety procedures and drills. The response cost refers to physical and/or psychological effort needed to complete the behavior (Stock, 2022). In the case of active shooter drills, the response cost could include the physical effort needed to complete the drill, especially in the case of a multi-response drills such as A.L.I.C.E.: Run, Hide, Fight; or Avoid, Deny, Defend. The response cost also includes the psychological toll to participate in such drills.

Protection Motivation Theory is a valid theory to use as a framework for understanding why safety procedures are put into place by lawmakers and administrators. PMT can help in understanding which safety procedures are used in different schools. The theory can also be used to understand an individual student or teacher's response to the procedures (Ford & Frei, 2016). For example, a student or teacher will participate in the drills and safety procedures more willingly and follow the procedures more diligently if they perceive the threat of danger and injury to be imminent or highly probable and they are convinced that the safety procedures put in place are effective in minimizing or stopping the probability of injury.

Related Literature

Types of Active Shooter Drills

In an effort to keep students and staff safe at school, emergency response drills are conducted on a regular basis. These drills include fire drills, tornado drills, inclement weather drills, and more recently, intruder or active shooter drills (Henry, 2015). Active shooter drills include one of the following types of drills: lockdown drills, option-based drills, and full-scale

simulations (Howard et al., 2022). Teachers describe these three types of active shooter drills as follows: The first method involves sheltering in place with lights off, doors locked, and children kept quiet. The second method is more active with students armed with heavy objects, teachers armed with pepper spray and scissors, and mentally preparing to protect students at all costs. The third method involves simulation with a police officer or principal trying to breach the classroom by jiggling the door handle (Stevens et al., 2020).

The lockdown method is taught widely in schools. A kindergarten classroom in Massachusetts, for example, displays a poster with lockdown instructions sung to the tune of "Twinkle, Twinkle, Little Star." The lyrics read, "Lockdown, lockdown, shut the door, shut the lights off, say no more" (Christakis, 2019, p. 11).

One type of option-based drill is A.L.I.C.E. which stands for Alert, Lockdown, Inform, Counter, and Evacuate (Jonson et al., 2020). In a study conducted by Jonson et al. (2020) using simulations during ALICE training events, researchers wanted to determine whether lockdowns or multi-options drills led to a greater survivability rate and a quicker resolution. During the simulation, the multi-option response resulted in a shorter time for resolution and a significantly lower number of participants self-reporting being "shot." The study has limitations including the fact that it was conducted with adults of whom almost half were in law enforcement. It is the first study to test these two methods, though it provides suggestive rather than definitive results (Jonson et al., 2020).

A research study by Stevens et al. (2020) revealed that these option-based drills did not increase secondary trauma, but they also did not decrease secondary trauma by providing a sense of security. The purpose of the Stevens et al. (2020) study was to consider the relationship between participating in lockdown drills, teacher-reported classroom aggression, and teachers'

interaction with school-shooting media. Teachers may experience secondary trauma if they have been the target of aggression in their classroom and they interact with school-shooting media that may remind them of the threat of harm as they direct their students in active shooter drills.

The types of simulation drills vary dramatically across schools in the United States ranging from some schools providing parental notification and using trauma-informed practices to other schools using masked actors during the drills and requiring young children to be confined in a small space for extended periods of time (Gerlinger & Schleifer, 2021). Children in U.S. daycare, under age 2, are even participating in lockdown drills (Simonetti, 2020). Active shooter drills can involve the whole school, or they may also include emergency response agencies (Crist 2017).

Some active shooter drills involve simulations of teachers being shot with projectiles that cause bruising and draw blood. Simulations involve masked staff members going around the campus brandishing a fake gun and trying to breach the classroom doors (Hirschauer, 2019). Teachers participating in an active-shooter drill in Indiana were shot at with pellets and described the incident as frightening, insulting, and painful (Zraick, 2019). A school in rural Oregon conducted an unannounced active shooter simulation drill during a teacher in-service day with the school safety officer disguised as an active shooter. The disguised officer entered a teacher's classroom, pointed a starter pistol that looked real at her, pulled the trigger, and said, "You're dead." The teacher, thinking the incident was real, ran out of the building. The teacher has not been able to return to work, due to post-traumatic stress disorder and emotional stress. She sued the school district (Zirkel, 2018). A high school in Florida initiated a "code-red" lockdown drill stating over the PA system, "This is not a drill." Students hid in classrooms, sobbed hysterically, and wrote goodbye letters to their parents. After another announcement, students fled the

building, and parents flooded 911 with calls. It was later revealed that it was just a drill, which infuriated parents, students, and faculty (Christakis, 2019).

Including outside emergency response agencies is another application of simulation drills. A school in Washington decided to conduct a drill while the students were in the cafeteria. School officials reasoned that if someone came to the school with malious intent, the person would probably come at a time when most people were out of their classrooms. The drill consisted of the principal coming over the intercom and stating that this was only a drill, and that for the purpose of this drill, the threat was coming from the west side of the campus into the cafeteria. The principal advised the students to move to a safe location. Students locked themselves in an adjacent room, went to their cars in the parking lot, or gathered outside on the tennis courts. Eventually, an all-clear message was given. Local police were on hand to give feedback, and it was discovered that the outside intercom was not working. ("Washington School Conducts Active Shooter Training in Cafeteria and Elsewhere," 2018). A high school in Forsyth, Georgia conducted a simulation of a school shooting scenario. Several hundred people took part in the simulation including the Forsyth Fire Department, EMS personnel, and Forsyth County Sheriff's Department. An actor wearing black clothes and a mask opened fire with a training gun. Student actors were "wounded" or "killed" (Prall, 2014). Emotional tactics are also used to simulate real-life experiences. School officials in Muncie, Indiana played the 911 recording of teachers pleading for students to hide during the Columbine school shooting as part of their back-to-school emergency preparation instructi on (Williamson, 2019).

Mandated Active Shooter Drills

In response to high profile mass school shootings, the implementation of school safety procedures has increased. Schools are mandated, at the threat of losing their accreditation, to

have several different types of safety drills, including fire drills, inclement weather drills, and active shooter drills. According to the National Center for Education Statistics, 95% of public schools have plans in place for active shooter drills (Simonetti, 2020). Forty states require lockdown or active shooter drills in their schools (Donovan, 2023). Monthly active shooter drills were mandated for each school district in Florida by the Florida Senate Bill 7026, also called the Marjory Stoneman Douglas High School Public Safety Act (Howard et al., 2022). The basis of this legislation was the examination of the key causes leading up to the Parkland school shooting, which included inadequate reporting of mental health warning signs regarding the perpetrator, little physical security measures, few security policies, and faulty threat assessment measures (Howard et al. 2022).

After the Parkland school shooting, the Federal Commission on School Safety also developed the Students, Teachers, and Officers Preventing School Violence Act (STOP). STOP recommendations included school surveillance, law enforcement presence, and threat assessment. The STOP Act emphasized that local education authorities must find solutions that work in their specific school context. STOP provides funding for developing anonymous tip lines, increasing collaboration between schools and law enforcement, training staff and students to prevent violence, and creating threat assessment teams (Howard et al., 2022).

However, no one-size-fits-all drill regarding emergency responses exists, even for the same type of emergency. For example, a lockdown response requiring students to remain in their classrooms could result in students becoming a target for the shooter (Shah, 2013). Although active shooter drills are mandated for schools in the United States, there is no national standard for how lockdown or active shooter drills should be conducted (Schildkraut et al., 2022).

School Characteristics

Statistically speaking, larger schools are more likely to have active shooter events, due to the increased possibility of opportunity and the greater chance of motivated students (Blad, 2019), but this does not necessarily translate into better preparation. A research study by Gerlinger and Shleifer (2021) investigated the characteristics of public elementary and secondary schools in the United States that have implemented active shooter drills. In their sample of 5,209 schools, 58% of the schools had practiced active shooter drills during the previous school year. This particular study examined the types of schools that employ this practice. The study found that schools with internal conflict, such as disciplinary issues, and external conflict, such as neighborhood crime, are more likely to practice drills for active shootings. Two additional noteworthy findings from this study was that schools with a higher percentage of white students were less likely to implement active shooter drills, and smaller schools were also less likely to conduct active shooter drills (Gerlinger & Schleifer, 2021). Schools that do conduct active shooter drills are more likely to train teachers on positive interventions, warning signs, and safety procedures. Suburban schools are predicted to implement active shooter drills more than schools in urban areas. However, there is very limited evaluation on the efficacy of these active shooter drills (Gerlinger & Schleifer, 2021).

Impact of Active Shooter Drills on Mental Health

Individual personalities, coping styles, and past traumatic experiences all play a role in determining how active shooter drills may make a person feel, and considering unintended consequences should be an important factor before practices are widely implemented (Schonfeld et al., 2020). According to McAllister and Martaindale (2021), even the anticipation of an active shooter drill has indicated increased levels of oxidative stress in both men and women. Acute

exposure to psychological stress, in the form of an active shooter drill, results in increased blood pressure and salivary stress (McAllister & Martaindale, 2021).

Although there is little research on the effectiveness of active shooter drills, some studies have investigated the negative mental health effects on students, teachers, and administrators. The American Federation of Teachers and the National Education Association, along with Everytown for Gun Safety Support Fund, released a cautionary report stating, "While there is almost no research affirming the value of these drills," the report further stated, "Stories abound in the media of incidents where students, educators, and staff have experienced distress and sometimes lasting trauma as a result of active shooter drills" (Sofer, 2020, p. 14). Trauma-informed training for school staff was recommended.

Active shooter drills can be traumatizing for a student, especially if the student has a history of trauma (Erbacher & Poland, 2019). In a study conducted by Moore-Petniak et al. (2020), half of the students reported feeling unsafe or scared as a result of experiencing an active shooter drill. Students reported being scared, even in their own school, and having general anxiety about gun violence. Very few students reported feeling safer as a result of the drills. One participant stated, "Active shooter drills make me feel afraid, because if you make a sound your life and the life of your classmates will be in danger" (Moore-Petinak, et al., 2020, p. 511). The results of this study suggested that active shooter drills come with a high emotional cost to students.

Similarly, a qualitative research study by Bonanno et al. (2020) examined children's (ages 8-11) lived experiences with lockdown drills. The study examined how younger children understand and make meaning of the drills. One of the purposes of the study was to seek ways to mitigate negative outcomes for students. The students understood the purpose of the drill was to

keep their school safe, and the students could explain the procedures of the drill with the focus on remaining quiet. However, the threats they imagined ranged from an evil fairy to wild animals to bad guys. All the participants mentioned fear as an emotion they felt relating to the drills. One student mentioned having a stomachache and a headache when the drill began. Students mentioned coping skills of talking to adults about their fear and telling themselves that it is just a drill, that it will be okay, and that they should stay calm. Students also reported feeling frustrated and annoyed because of the drills. They were annoyed that they should have to go through the disruption and fear that they felt because of the drills (Bonanno et al., 2021).

A study by Elsherief et al. (2021) looked at 54 million social media posts of students in 114 schools in 33 states pre- and post-active shooter drills conducted. The data for this study came from Twitter and Reddit posts. Their results showed that anxiety, stress, and depression increased up to 42% after an active shooter drill was conducted. The researchers concluded that active shooter drills have the possibility of negatively affecting school communities (Elsherief, et al., 2021).

One qualitative research study examined the perceptions of secondary school principals as they implement multi-optional response programs in their schools as a safety measure (Burton, 2020). A multi-optional response program allows for the teachers to determine which response is best for their classes based on the location of a shooter. Response options include traditional lockdowns, barricading the door, fighting back, and evacuating. The principal is responsible for training faculty and students in these multi-optional responses. The Burton (2020) study investigated the principal's perceptions before, during, and after implementing the multi-optional response. School principals are responsible for planning, training, implementing,

and communicating the active shooter drills in their schools with little focus on how this responsibility impacts them, their role, and the culture of their school (Burton, 2020).

The three themes that emerged as a result of the interviews conducted were the importance of communication, the culture of fear, and heightened awareness among faculty, students, and parents. Principals observed increased anxiety levels among staff and students. (Burton, 2020). One principal related that he has a staff member who will stay home on the day of a planned active shooter drill. Teachers have asked for bullet proof vests. Principals noted that after the Parkland shooting, parents experienced fear in sending their students to school. One principal noticed an increase of students with anxiety and fear of coming to school after practicing an active shooter drill (Burton, 2020). Every principal in the study stated that fear of a school shooting was elevated after an active shooter drill. Burton (2020) concluded, "The culture of fear in schools due to the potential of school shootings, as well as student drills that perpetuate preparing for a potential shooting, places building principals in the center of an organization that was not intended to address societal challenges, such as mass shootings" (p. 93). It is in the best interest of all educational stakeholders determine an effective way to prepare for an active shooter that is not going to traumatize faculty, students, staff, and parents (Burton, 2020).

Balancing Safety and Fear

School districts must determine how to balance the mandate of shooter drills with the needs of those that participate to be safe from threats and trauma (Schildkraut et al., 2020). A very real sense of fear, particularly after a school shooting, is prevalent on campus. A study by Kaminski et al. (2010) researched the impact of the Virginia Tech and Northern Illinois University shootings on the fear and perceived safety of students enrolled in the University of South Carolina. The evidence demonstrated that both shooting incidents increased student fears

of being attacked by a weapon and being murdered on campus (Kaminski et al., 2010). This fear can be heightened by walking students through these safety drills and simulations. One professor at the University of California was disheartened that she has to start her semester discussing safety procedures and active shooter protocols (Jarvis, 2019). “We don't light a fire in the hallway to practice fire drills,” she said. “We do not have to do highly sensorial active-shooter drills to be ready for active shooters” (Jarvis, 2019). “We’re educators; we're not experts in safety,” the professor stated. But in discussing the state of American education, she admitted: “We're now becoming experts in safety” (Jarvis, 2019).

The National Education Association and the National Education Association Health Information Network developed a crisis guide that stated approaches to preventing a crisis must be planned with a focus on creating a positive school climate, yet the effect that lockdown drills have on students and staff is not well-researched (Eckhoff & Goodman-Scott, 2021). One research study looked into school counselors’ perceptions and understanding of lockdown drills in light of navigating the paradox of safety and fear. This phenomenological study considered school counselor’s lived experiences of lockdown drills in PK-Grade 12 public schools. School counselors are tasked with ensuring the well-being of students. They also have first-hand knowledge of the planning and implementation of active shooter drills. Research on the effects of these drills on staff is limited, but as staff are responsible for implementing these drills, their experience is important (Eckhoff & Goodman-Scott, 2021). The American School Counseling Association (ASCA) stated that students who experience active shooter drills on school sites can experience increased anxiety, emotional trauma, and fear. The ASCA recommended that students be given the opportunity to opt-out of these types of drills (Eckhoff & Goodman-Scott, 2021). There is no such recommendation given to teachers. Teachers are ultimately responsible for their

students' safety and are not given the option of not participating in these types of drills. The themes that emerged from the interviews for this study include an awareness of school violence, the necessity and variability in preparation, a paradox of safety, and communication as support and challenge (Eckhoff & Goodman-Scott, 2021).

Studies have been conducted with university students recalling their experiences in high school with active shooter drills in order to determine the long-term effects of these drills. A study by Huskey & Connell (2020) surveyed university students to determine if active shooter drills experienced in high school resulted in negative student outcomes. Experiencing these types of drills could have long-term negative effects on the psychological well-being of students who come to school in a state of fear, rather than a state of safety. Little empirical research exists to determine if the costs to students' well-being is worth the potential positive outcome of these drills, as there is also little empirical research on whether these tactics save lives. The results of the study indicated that students who experienced an active shooter drill in high school had an increase in fear, decreased perceptions of school safety, and an inflated perception of risk (Huskey & Connell, 2020). The increase in fear can result in students' lack of concentration, avoiding areas in the school, or avoiding school altogether. Gender, age, and race were not significant factors in the differences of the students' perceptions; however, school characteristics, such as location, showed significant differences in the perceptions of students related to the active shooter drills (Huskey & Connell, 2020). A study by Worthington et al. (2021) looked into the long-term effects of participating in an active shooter drill in high school. The participants were college students. The study considered current levels of anxiety and college preparedness. The results stressed the need for training and knowledge of university procedures for students attending the college, as students felt prepared based on the drills they experienced in high

school; however, the procedures and layout of the university could be much different than what they learned in high school. A limitation of the Worthington (2021) study and the Huskey & Connell (2020) study was that they examined the experiences of students at only one specific university. An additional limitation was that the Huskey & Connell (2020) study included participants who were juniors and seniors in college, which could lead to inaccurate recall of drills experienced several years before in high school.

Concerns about the negative effects of active shooter drills include increased anxiety and decreased academic performance (Jonson et al., 2020). The threat of a crisis at school can negatively impact students' anxiety levels (Zhe & Nickerson, 2007). A culture of fear can have a negative effect on a school's purpose of educating students (Burton, 2020). As lockdown drills are not as familiar as fire drills, they may be upsetting to students (Brown, 2019).

The effectiveness of active shooter drills can be difficult to assess because when crisis events do occur, it is a challenge to determine if the outcome of the event is due to following the procedures of the active shooter drills and the training the students received (Saggers et al., 2021). Criticisms of active shooter drills include the fact that students may not retain this information in an actual gun violence situation, the risk of harm or even death when confronting an assailant, and the traumatic effect of these types of drills (Schildkraut & Nickerson, 2020). Saggers et al. (2021) stated, "It is also unclear how long any anxiety, stress, or other adverse consequences last for" (p. 452).

Best Practices for Active Shooter Drills

Incorporating developmentally appropriate responses, best practice recommendations, and clear procedure communication can result in normal anxiety levels and a sense of safety during active shooter drills (Nickerson, 2007). Active shooter drills are often planned without

consideration of the needs of children. Schonfeld et al. (2020) stated that children who have suffered a traumatic event or those with physical or intellectual challenges are especially vulnerable, and their unique needs should be taken into consideration when determining best practices for active shooter drills. School safety drills should be planned and implemented thoughtfully with the potential of emotional impact and developmental appropriateness considered (Schonfeld et al, 2020). Brown (2019) suggested that the procedures be taught in the same manner as math and English, in accordance with the child's developmental maturity. The drills must be tailored to the students' maturity level, prior traumatic experience, history, and special needs (Brown, 2019). Lockdown drills done correctly are done in a trauma-informed way (Vail, 2022). Keep the anxiety down by always calling it a drill, not using sensorial techniques, not using simulations, including gunfire and people pretending to be shooters. Teachers should model calm behavior and debrief with students at the end of the drill (Vail, 2022).

Implementation of best practices may be different than what was previously expected. A study of more than 8,000 one-on-one controlled video and audio simulations showed that school personnel who participated in training about making decisions in crisis responses, were twice as likely to misjudge action steps compared with untrained staff who relied on their common sense (Schonfeld et al., 2020). The study found that adults who had participated ran from the classroom when staying would have been a safer alternative. Another example showed that children were taught to fight or attack the shooter when fleeing or hiding might have been safter (Schonfeld, 2020). Safety drills, plans, and procedures should encourage critical thinking from teachers, staff, and students, allowing for necessary variations in the plan (Crist, 2017). If the practiced plan is leading someone into danger, the person must have the ability to make a new plan immediately (Brown, 2019).

Communication of procedures is imperative. The more prepared a student felt for an active shooter situation, the lower the level of anxiety experienced (Worthington et al., 2021). Unannounced drills cause particular harm when students perceive these drills to be real (Hirschauer, 2019). The dangers of conducting unannounced active shooting drills have been examined by looking at a lawsuit filed by a teacher who suffered psychological distress because of the unannounced active shooting drill conducted during an in-service teacher workday. Active shooter drills require broad-based participation of teachers, parents, school board members and administrators (Zirkel, 2018). Communication with all stakeholders is of the utmost importance and will help to mitigate psychological and emotional distress that could be experienced. School leaders need to be prudent about proactive practices, including potential emotional and psychological distress that can result from active-shooter simulations, especially when they are unannounced (Zirkel, 2018). Communication to staff, parents, and students is a key component in implementing these types of drills. Communication from principals to stakeholders before, during, and after active shooter drills can help build trust and decrease levels of fear (Burton, 2020).

The National Association of School Psychologists (NASP) and the National Association of School Resource Officers (NASRO) have offered best practices considerations for schools to follow as they implement active shooter drills. These best practices included considering developmental levels and previous trauma experience of students, having mental health professionals available during all stages of the drills (before, during, and after), and allowing staff and students to opt out of the drills if it would prove to be traumatizing to them (Howard et al., 2022). Best practices suggest that adults and students who are uncomfortable with the drills should be excused from participating but can still be provided with individual safety information

and instructions by a counselor (Brown, 2019). A trauma-informed approach to planning and conducting active shooter drills includes the collaboration of school staff, students, families, EMS providers, firefighters, law enforcement and school psychologists (Erbacher & Poland, 2019). Active shooter simulations can help first responders train but must include input and knowledge from a school psychologist.

A student's perspective of the planned active shooter drill included being well-informed of the drill and instructed on what to do. The student may feel like the participation in the active shooter drills proved that their school placed an importance on the students' safety (Erbacher & Poland, 2019). Baer et al. (2014) conducted a study with open-ended questions. The study was conducted three months after an emergency response situation occurred on campus. Understanding student perspective is important, as this relates to student response during an emergency. A recommendation from the Baer study included the fact that students should be included in the designing of the emergency response procedures (Baer, et al., 2014).

The National Association of School Psychologist recommends that these drills be carefully planned and that a school safety team be involved. Safety teams should meet regularly to update emergency plans. The team should consist of law enforcement officials, emergency responders, parents, teacher, counselors, and administrators (Brown, 2019). The importance of multi-agency drills was a common theme in a study by Perkins (2018). Participants in this study also indicated that they would benefit from more frequent reviews of the safety plans and that they wanted to see workshops on the safety procedures for all types of emergencies and crises that could potentially occur on their campus (Perkins, 2018).

In addition to the recommendations by the National Association of School Psychologists and the National Association of School Resource Officers, the American Academy of Pediatrics

(AAP) added that children should not be involved in routine high-intensity drills. The AAP recommended that students should be monitored for signs of psychological distress related to the active shooter drills. The active shooter drills should involve consent/assent, according to the AAP (Donovan, 2023).

Trauma mitigation should also be practiced, so that it is in place in the event of an emergency situation. A positive from the students' perspective is that they feel better prepared in responding to an emergency situation (Schildkraut et al. 2020). A culture of preparedness can be created when adequate training is provided. Training consists of what to do, why it is done, and how it all comes together during the drill (Vail, 2022). School districts must determine how to balance the mandate of shooter drills with the needs of those that participate to be safe from threats and trauma (Schildkraut et al., 2020).

A study by Howard et al. (2022) investigated whether schools were following the guidelines recommended by the National Association of School Psychologists (NASP) and the National Association of School Resource Officers related to conducting active shooter drills. The participants in the study included six school districts across the state of Florida consisting of midsize to large suburban schools. The recommended guidelines for drill preparation being analyzed in this study include advance warning to teachers and students of the drills, orienting substitute teachers to the procedures and building layout, an option for teachers and students to opt out of the drills, and that safety procedures be talked through before the drill is conducted. The results of the study indicated that 52.4% of schools informed teachers in advance of drills and 48% informed students; however, 91% of schools said that they do not provide guidelines for discussions before active shooter drills are conducted. Schools indicated that 85% of substitute teachers were trained in advance of the drills. Regarding students and teachers being

able to opt out of the drills, 62% of schools said there is no alternative option for teachers or students who do not wish to participate in the drills. While the NASP and NASRO warn that simulation drills may be traumatic for some participants, the Howard (2022) study reveals that 42% of schools said they use simulation techniques; however, 71% indicate they have different procedures in place for younger students. Another recommendation from the NASP and NASRO is to offer differentiated procedures for students with neurodiversity. Of the schools surveyed, 67% responded that they do not have procedures for differentiating drills for students with neurodiversity (Howard et al., 2022). This study was limited to the state of Florida creating the need for additional research in schools throughout the United States.

Alternatives to Active Shooter Drills

Threat Assessment

Alternatives to active shooter drills may be available that promote school safety and do not have negative mental health effects on students. Threat assessment is a promising intervention for school violence protection which includes identifying potential threats and developing plans to address underlying causes (Howard et al., 2022). Threat assessment allows authorities to use their judgment in determining whether the student poses a serious threat of violence (Cornell et al., 2012). Threat assessment can be done as a team approach, such as the Virginia Threat Assessment Guidelines provide. Threat assessment is an authoritative approach rather than the authoritarian approach characterized by a zero-tolerance policy. Schools who employ an authoritative approach have less truancy, bullying, and student victimization. The identification and investigation of student threats can aid in the prevention of violence in schools (Cornell et al., 2012).

One component of threat assessment is profiling students who may be potential shooters. The problem with profiling is it can lead to false positives meaning identifying a large number of students as shooters who are actually non-shooters (Ritchie, 2023). This is particularly a problem if using the stereotype of a school shooter portrayed in the media. The typical media school shooter is portrayed as a male who is a loner with anger management issues. The stereotype also includes involvement in a niche subculture and suicidal tendencies. However, this stereotype could fit many students who are not future school shooters while overlooking potential shooters (Ritchie, 2023).

A research study by Gammell and colleagues (2021) looked at instances where a gun was fired on school property during the time period from 1970-2020. There were 785 shootings reported. Of those instances, 37% of the shooters were adults, 14% of them turned the gun on themselves, 44% were white, and 54% occurred outside of the school building. Of these shooting occurrences, 8% involved a rifle, and 75% involved a handgun (Gammell et al., 2021). These statistics do not match what is frequently portrayed as the typical school shooter, making identifying potential school shooters more difficult. Some of the root causes of school shootings are the easy access to guns and the fact that many shooters are students with behavioral issues who leave clues on social media, but these students slip through the cracks (Sofer, 2020). Research has also identified some predictors including poor social skills, low academic achievement, substance abuse, and deviant peer groups, with the best predictor being prior antisocial behavior (Ritchie, 2023).

Positive Relationships

With antisocial behavior being a key factor in profiling potential school shooters, other recommendations to improve school safety include increasing positive relationships with family

engagement activities, enhancing mental health services, and providing threat assessment services (Lenhardt et al., 2018). A research study by Iniguez-Berrozpe and colleagues (2021) analyzed a sample of 4,273 Spanish high school students and found that positive relationships act as a protective factor against participating in aggression and violence. The study emphasized the importance of positive relationships between students and the entire education community including peers, teachers, and administrators. The study also stressed the importance of family engagement in school activities (Iniguez-Berrozpe et al., 2021). These positive relationships were positively correlated with the decrease of negative attitudes, which could potentially produce acts of aggression and violence (Iniguez-Berrozpe et al., 2021). Suggestions by Zullig (2020) to reduce school violence include disciplinary procedures that promote positive relationships between teachers and students.

Positive relationships between law enforcement officials and school administrators should be established long before any type of emergency situation arises (Duplechain & Morris, 2014). Law enforcement officers and campus mental health personnel need to work together to address the needs of students, particularly students who pose a threat to themselves or others (Schafer et al., 2010).

Social Emotional Learning

Social emotional learning can also help reduce school violence. Social emotional learning emphasizes preventive practices which can increase positive relationships indirectly contributing to the reduction of violence. Kantawala (2021) refers to social emotional learning as a moral ecosystem between home and school. Kantawala also stresses the importance of building empathy into schools' curriculum. As Flannery (2021) states, social emotional learning can also promote behavioral and academic success (Flannery et al., 2021). Social-emotional learning

projects can help reduce school violence and help students to develop the skills necessary to handle life challenges (Zullig, 2020). The results of a nationally represented survey of 700 PreK-12 teachers had the following findings: teachers identified mental health support as a way to improve school safety, teachers think social-emotional learning should be mandated, teachers say that the most common safety strategies used by their schools are active shooter drills, despite the fact that teachers feel that mental health resources are more likely to improve school safety (Kurtz et al., 2019).

Cognitive Behavior Interventions

Cognitive behavior interventions that are school based have resulted in a decrease of defiant behavior and aggression (Adhia et al., 2022). Ojonugwa and Kamilu state that the goal of cognitive behavior interventions is to change negative and destructive thought patterns. By changing these thought patterns, students' negative behavior is changed to more positive behavior (Ojonugwa & Kamilu, 2023). A research study conducted by Ojonugwa and Kamilu (2023) showed that cognitive behavioral interventions corrected aggressive and violent behaviors of students. In another study, health education teachers from 33 states participated in surveys from 2012-2018 to determine whether violence prevention practices in schools have increased. The study's results showed that these practices had increased during this time period. The study also showed that more violence protection programs were put in place for grades 9-12 than in grades 6-8 (Adhia et al., 2022).

Other School Safety Responses

Arming Teachers

One response to keeping school campuses safe is to arm teachers, administrators, and other school personnel with guns. The thought behind this is that the teacher can be the first line

of defense against the perpetrator before law enforcement arrives. Currently, 32 states allow school staff to carry firearms on campus (USCCA, n.d.). Schools that have chosen to arm teachers include schools in rural areas where there may be a delay in law enforcement response and schools with little resources to provide school resource officers and other safety measures (Flannery et al., 2021). This safety measure is controversial. Concerns with arming teachers include increasing the number of firearms on campus, guns being fired accidentally, or guns ending up in the hands of students (Flannery et al., 2021).

The U.S. Department of Education's Federal Commission on School Safety recommends arming teachers; however, very little empirical data supports this recommendation (Flannery, et al., 2021). Agencies opposed to arming school personnel include the National Association of School Resource Officers, the National Association of School Psychologists, and the National Parent Teacher Association (Flannery et al., 2021). According to a Gallup Poll released March 16, 2018, just over a month after the Marjory Stoneman Douglas High School shooting in Parkland, Florida, 73 % of teachers oppose arming school staff (El-Arian, 2018). Surveys conducted among school administrators show that two-thirds of administrators are against arming teachers, citing safety concerns with guns in schools (Wood & Hampton, 2022). A survey of school counselors conducted by the National Association for College Admission Counseling indicates that two-thirds of school counselors oppose arming school personnel (Wood & Hampton, 2022). A survey of teachers conducted by Wood and Hampton (2022) shows that most would not carry a gun if permitted, do not feel comfortable with their colleagues being armed, and are generally opposed to arming teachers on school grounds. Support for arming teachers was increased by male respondents who were Republican and lived in rural areas (Wood & Hampton, 2022). McCuddy and colleagues (2023) surveyed 2,514 middle school students on

their perception of safety when teachers are armed. Over half of the students indicated that they would feel anywhere from a little to a lot less safe if teachers were armed (McCuddy et al., 2018). Many student survivors of the Parkland school shooting have spoken out against arming teachers and have advocated against Florida's attempts to allow teachers and school personnel to carry guns (Baranauskas, 2021).

Relating to public opinion of arming teachers, a study by Baranauskas (2021) sought to determine the effects of culture, political affiliation, geographic location, attitudes toward guns, and feelings toward law enforcement on one's support of arming teachers. The results of their study show that 45% of the respondents oppose arming teachers in some respect, while 31% oppose arming teachers "a great deal." In support of arming teachers, 34% of the respondents support arming teachers in some respect, but only 17% support arming teachers "a great deal" (Baranauskas, 2021). Being a male of conservative ideology positively correlated with supporting arming teachers, while respondent with a higher education level who also support gun control negatively correlated with supporting arming teachers (Baranauskas, 2021). Baranauskas concludes his study by stating that since there is not an overwhelming amount of support for arming teachers, lawmakers will have a difficult time in amassing support for policies that allow teachers and other school personnel to carry guns into schools.

School Resource Officers

Another safety measure adopted by many schools in the United States is the presence of school resource officers (SROs). The Omnibus Crime Control and Safe Schools Act of 1968 defines school resource officers as career law enforcement officers with sworn authority assigned to work with schools (Layton et al., 2022). High profile school shootings have increased the support of SROs. According to the National Center for Educational Statistics, during the school

year 2017-2018, 46.7% of all public schools in the United States have sworn law enforcement officers carrying a firearm at their school (Digest of Education Statistics, 2019). The percentage is highest in larger schools with over 1,000 students, as 79.4% of these schools reported having SROs during the 2017-2018 school year. Interestingly, schools located in the city have the lowest rate of SROs at 34.4% followed by rural schools at 46.1%, suburban schools at 51%, and town schools with 59.4%, as of the 2017-2018 school year (Digest of Education Statistics, 2019).

Several studies have indicated that students may not feel safer with SROs at their schools (Layton & Gerstenblatt, 2022). Of the research conducted, there are mixed and contradictory findings of students' perspectives on the presence of resource officers at their schools. In some cases, the presence of SROs increases students' fears of victimization (Layton & Gerstenblatt, 2022). A qualitative study conducted by Layton and Gerstenblatt (2022) sought to understand how students' experiences with SROs affected their narratives about the officers' presence in their schools. The participants in the study came from three cities in rural northeastern United States. The 17 students who participated came from restorative justice programs, suspension diversion programs, and school and community based after-school programs. These students had previous experiences with law enforcement officers. Some themes from the study included student attitudes toward SROs ranging from wariness and intimidation to reassurance. The wariness students felt was broken down into students feeling skeptical of the officers' ability to provide safety and misgivings that the students had about the dangerousness of police presence. Reassurance was felt by some students who stated that the presence of SROs gave them someone to whom they could talk. Other positive comments from the students included the knowledge that the SROs acted as "brokers" on the student's behalf (Layton & Grestenblatt, 2022). The researchers in this study recognized the importance of positive adult interaction among students

and suggested that schools increase the presence of counselors, psychologists, and other adult role models, as well as encourage positive interactions between school resources and students. Layton and Grestenblatt (2022) also stressed the importance of policymakers considering the students' perceptions of safety as they face the challenges of creating a safe environment in schools.

Locking Classroom Doors

Locking classroom doors is another safety response utilized by many schools. After the Columbine High School massacre in 1999, schools have substantially increased controlling access to classrooms (Kennedy, 2018). After the Sandy Hook school shooting, emphasis was put on the ability to lock classroom doors quickly and from the inside (Kennedy, 2018). The Door Security and Safety Foundation recommends the installation of code-compliant door locks through its initiative, "Opening the Door to School Safety." Part of being code-compliant includes the doors being easily lockable from within the classroom without having to open the door, as well as not requiring special knowledge, keys, or tools in order to operate the locks on the doors (Kennedy, 2018).

According to Langreo (2022), some barriers to schools having doors that lock from the inside included logistics and finances. Changing door locks for classroom doors could take up the school's entire maintenance budget eliminating the funds for other maintenance issues such as electrical, plumbing, telecommunications, and fire suppression (Langreo, 2022). Therefore, changing the classroom door locks to lock from the inside may be a lower priority for low-income schools.

A New York state trooper advised administrators to always keep classroom doors locked, stating that research shows a loss of fine motor skills during a crisis event, so someone

might struggle to quickly lock the door. The trooper also recommended having a single monitored point of entry for each building (Vickers, 2019). The lack of properly locked interior classroom doors and exterior doors into buildings plays a significant role in an active shooter event. This was displayed in the school shooting at Robb Elementary School in Uvalde, Texas, where there were problems with both interior and exterior doors locking properly (Langreo, 2022).

Metal Detectors

As of 2016, 9% of high schools in the United States use metal detectors to screen students (Jones, 2019). The use of metal detectors in schools can be controversial in regard to a student's right to privacy. However, courts have opined that the need for safety outweighs individual rights to be free from search. Barriers to metal detectors include funding and the logistics of getting large amounts of students through the metal detectors each day without disrupting educational time (Jones, 2019). Jones (2019) recommended school districts explain legitimate reasons to install metal detectors, display notices outside, inform parents in advance, and have a school attorney contributing to the process.

A study by Tanner-Smith and Fisher (2016) reported that metal detectors are almost always used along with security cameras and school resource officers and are rarely used in isolation. Metal detectors are not foolproof, but they are one additional tool schools can use for safety. They are a partial solution to a much larger societal problem (Jones, 2019).

Additional Measures

Further suggestions for implementing safety measures include limited and controlled points of entry, wireless panic alarms, and strategically placed telephones available for making emergency calls (Duplechain & Morris, 2014).

Additional Research Needed

After the April 20, 1999, shooting at Columbine High School, lockdown drills in schools became commonplace. After the February 14, 2018, shooting at Marjory Stoneman Douglas High School in Parkland, Florida, it became known that teachers and students had very little training on responding to active shooter situations (Schildkraut et al., 2021). In efforts to prepare teachers and students for the unimaginable, schools have implemented various types of safety responses and procedures which run the gamut from discussions to full-scale simulations. The types of drills and safety procedures implemented across schools in the United States vary drastically (Schildkraut et al., 2021). Additional research is needed to understand the different types of safety responses and procedures used at various types of schools across the United States.

Schools use security measures such as metal detectors, security cameras, locked doors, and school resource officers. The use of these types of security measures varies greatly across schools in the United States and may be related to a school's demographics, such as size, diversity, and location. This current study sought to identify patterns related to school security measures and demographics.

There is very little empirical research on the effects of these various lockdown and active shooter drills on participants (Schildkraut et al., 2021). Some research indicates that active shooter drills can have a negative effect on mental health of participants who have already experienced a traumatic event in their life (Erbacher & Poland, 2019). Additional research is needed on the immediate effects of participating in an active shooter drill (Eckhoff & Goodman-Scott, 2021). This study addressed the immediate physical and psychological effects associated with participating in active shooter drills.

Summary

The motivation for implementing and participating in active shooter drills in schools can be regarded through the lens of the protection motivation theory. Essentially, this theory helps with understanding how an individual responds to various safety drills and procedures (Ford & Frei, 2016). A person's response is based on the magnitude of the harm, the probability of the harm occurring, and the efficacy of the response, including self-efficacy to effectively carry out the response (Rogers, 1975).

Staff and students participate in many different types of safety drills at school, including fire drills, inclement weather drills, and more recently, active shooter drills. These drills have been mandated due to high-profile school shootings. There are many different types of active shooter drills such as lockdown drills, multi-response drills, and active simulations (Howard et al., 2022). Although 95% of public schools in the United States have implemented some type of active shooter drill, there is no national standard for the type of active shooter drills being conducted (Schildkraut et al., 2020).

Active shooter drills affect participants in various ways, including having negative effects on one's mental health, causing increased anxiety and fear (Kaminski et al., 2010; Schonfeld et al., 2020; Sofer, 2020). The immediate and long-term emotional and social impacts of these drills are not well known (Eckhoff & Goodman-Scott, 2021). School administrators and lawmakers are tasked with balancing safety in schools with possible negative effects from active shooter drills and other safety procedures (Schildkraut et al, 2020).

There are alternatives to active shooter drills including threat assessments, positive relationships, social emotional learning, and cognitive behavior interventions. Educational organizations and researchers have given recommendations for best practices for implementing

safety procedures in schools (Howard et al., 2022). In order to continue to develop best practices for safety drills, it is beneficial to know what schools are currently doing to keep students safe.

This current study sought to understand the types of active shooter drills as well as other safety precautions and procedures implemented at various schools across the United States. The study also addressed the need to understand the immediate and long-term effects of participating in active shooter drills. Data from this study may be used by educational organizations, as well as other researchers, to improve the way students are kept safe at school.

The next chapter describes the research methodology used in the current study and will be explained with a rationale for using this method. Information will be given on obtaining participants, as well as a description of the survey used. The chapter will conclude with a data analysis of the findings.

CHAPTER THREE: METHODS

Overview

The purpose of this quantitative research study was to understand the types of active shooter drills and other safety procedures being implemented at various types of schools across the United States. The study will also provide information from the participants on the physical and psychological effects of participating in active shooter drills. This research is a descriptive statistics study with data collected from participants using a researcher-created survey.

This chapter will explain the research methods used in this study. The design method is explained, and a rationale is given for why this particular design is appropriate for this study. The demographics of the participants and how they were obtained is also explained. Details about the instrument used in the study are provided. An alignment is shown between each question on the survey instrument to the over-arching research questions of the study. Finally, an explanation is given on how the data were used to identify percentages, comparisons, and patterns.

Design

Researcher used a quantitative descriptive statistics design to guide this study. Descriptive statistics are used to describe the characteristics of the data collected (Mood et al., 2019). Descriptive statistics from the data obtained from the survey used in this study helped the researcher to quantify the results and answer the research questions. The data are summarized, sorted, and grouped in simple quantitative measures. For example, percentages can be used to understand the data and to display the data in a visual representation, such as a chart or graph (Types of Variables, Descriptive Statistics and Sample Size, 2019). This design is most appropriate for the study as it provides a systematic description of the facts (Bager-Charleson & McBeath, 2022). The facts include school safety procedures, including active shooter drills,

being implemented at various schools in the United States. The purpose of the study was to understand which types of active shooter drills are conducted in various schools across the country. The study also sought to understand the frequency of these drills, as well as what other security measures taken at various schools across the United States. In addition, the study investigated the psychological and physical effects of the active shooter drills on school personnel. This type of research design is the most appropriate for this study, as this study is non-experimental and used a survey to obtain data to answer the research questions (Anthony, 2021). Similar to a research study conducted by Lane (2008), this current study focused on population characteristics, which included the characteristics of the school, as well as characteristics of the individual participants. The data obtained will describe the who, what, when, where, and how of the information being collected. For example, the data obtained will answer the question of "who" relating to the participants and their schools, the "what" relating to which safety procedures and active drills being implemented, the "when" relating to the frequency of the drills, the "where" relating to the various locations of the participants' schools, and the "how" relating to the procedures used to conduct the drills.

Research Questions

RQ1: What type of active shooter drills are conducted in various public and private elementary, middle, and high schools across the United States?

RQ2: What is the frequency of active shooter drills conducted in various public and private elementary, middle, and high schools across the United States?

RQ3: What security measures are being taken at various public and private elementary, middle, and high schools across the United States?

RQ4: What are the physical and psychological effects of active shooter drills on participants with comparisons by demographics across the United States?

Participants and Setting

The participants for this study were school personnel including teachers, administrators, school counselors, and other staff members. The participants live in different areas across the United States including states in the north, south, east, and west, and from schools in rural, suburban, and urban areas. Participants are from elementary, middle, and high schools and from public or private schools. Any information leading to the identification of any individual has been removed.

Participants were obtained by convenience sampling from the online research website, Prolific (prolific.co). The survey was sent to 482 participants. This number of participants was adequate to the recommended sample size of 385, with a 20% allowance for attrition. The sample size was calculated by multiple internet-based sample size calculation tools recommended by Duffy (2006).

The survey was completed by 297 participants. The participants in this study included 100 males, 197 females. Ninety-six were new school employees with less than 3 years experience in their current position, and 42 had over 15 years experience with ages ranging from 20 to 70. Regarding the disbursement of the participants across the United States, 90 resided in the South, 88 in the Midwest, 65 in the Northeast, and 54 in the Western United States. In addition, 237 participants were from public schools, 51 from private schools and 9 from preschools. The majority of participants were teachers (208). Other participants included 24 administrators and nine counselors with the remaining participants being certified support staff or other positions.

Instrumentation

The instrument used in this study was a survey created by the researcher. The survey consisted of 29 questions with multiple choice answers (See Appendix A). A pilot study of the survey was conducted by sharing the survey with a teacher, a school counselor, and two administrators who each gave feedback on the questions asked in the survey. The survey was adjusted to add and rewrite questions after the pilot study. The revised researcher-created survey is most appropriate for this study, as the questions on the survey were created to answer the research questions of the study, as indicated below:

Research Question	Survey Question Corresponding to Research Question
RQ1: What type of active shooter drills are conducted in various public and private elementary, middle, and high schools across the United States?	Question 1: What is your regional location in the United States? Question 4: What type of school do you work in? Question 5: What is the socio-economic status of your school? Question 9: What type of active shooter drills does your school conduct? Question 21: Does your school collaborate with local law enforcement and emergency response agencies to develop and carry out your active shooter drills? Question 27: Does your school differentiate active shooter drills for younger or neurodiverse students? Question 29: How are active shooter drills announced in your school?
RQ2: What is the frequency of active shooter drills conducted in various public and private elementary, middle, and high schools across the United States?	Question 10: What is the current schedule of these drills occurring at your school? Question 11: Are you given advanced warning of these drills? If so, how much advance notice do you receive? Question 15: Does your school offer the option of not participating in the active shooter drill?

RQ3: What security measures are being taken at various public and private elementary, middle, and high schools across the United States?	Question 16: Does your school have metal detectors? Question 17: Does your school have a policy of keeping classroom doors locked? Question 18: Does your school have security cameras? Question 19: Does your school have a safety team planning committee? Question 20: Does your school have a plan for students to reunite with family members (reunification plan) after an active shooter event? Question 22: Are your teachers/administrators armed? Question 23: Does your school have on-campus school resource or security officers?
RQ4: What are the physical and psychological effects of active shooter drills on participants with comparisons by demographics across the United States?	Question 2: What is your role/position in the school? Question 3: How long have you held your current position? Question 6: What is your gender? Question 7: What is your age range? Question 8: Have you experienced a traumatic event involving gun violence? Question 12: On a scale of 0 – 5, with 0 being not at all, and 5 being very prepared, do you feel these drills properly prepare teachers, staff, and students for an active shooter event? Question 13: Do you experience physical symptoms, such as a racing heartbeat, anxious feelings, headache, or stomachache relating to active shooter drills? If so, when do they occur? Question 14: Do you feel anger related to the active shooter drills? If so, when do you feel angry? Question 24: Have you ever opted out or stayed home to avoid an active shooter drill at your school? If so, how often? Question 25: Do you feel more prepared for an active shooter event because of the procedures in place at your school?

	Question 26: Have you ever had an active shooter event at your school? Question 28: Does your school offer training on how to recognize and respond to trauma related to active shooter drills?

Similar survey questions were asked in the Howard et al. (2022) study, such as what type of drills are conducted, whether or not teachers are told in advance of the drills, and if there is an option to opt out of the drills. Howard et al. (2022) surveyed participants in Florida. The current study will include participants from across the United States. Gerlinger et al. (2021) asked demographic questions, similar to the ones in this researcher-created survey, such as the type, size, and location of school.

Procedures

A survey was created by the researcher based on the research questions for the study. Researcher conducted a pilot study on the survey among two administrators, a teacher, a school counselor, and a support staff. Based on feedback from the pilot study participants, the survey was revised to its current state. The survey questions were uploaded to Qualtrics, a program for creating and distributing research surveys (qualtrics.com).

After obtaining IRB approval from Liberty University, the survey was distributed to participants through Prolific (prolific.co), a web-based site for finding participants and conducting research. Prior to completing the survey, participants read and signed a consent form (Appendix B). A sample size comprised 297 participants. It was estimated that the survey would take approximately five minutes for participants to complete. Participants were paid at a rate of $12.00 per/hour, equating to $1.00 per survey.

The results of the survey were obtained, and data were analyzed through Qualtrics, which provides visual representations of the data, such as tables and charts. Descriptive statistics, such as measures of frequency, central tendency, and dispersion were used. This allowed the researcher to identify patterns in the data and make comparisons based on school and participant's demographics.

Data Analysis

The descriptive approach used in this study helped the researcher to identify frequency, trends, and characteristics (Anthony, 2008). The data obtained from the survey were analyzed to determine relationships (Anthony, 2008). The relationships analyzed in this study included the relationship between school characteristics and safety procedures used, and the relationship between the procedures used and the effects on school personnel. The data were analyzed by using descriptive statistics. Qualtrics was used to analyze and organize the data. This enabled the researcher to summarize and organize the data and to observe any patterns. The three types of descriptive statistics are measures of frequency, measures of central tendency, and measures of dispersion (Bager-Charleson & McBeath, 2022/2023). The three types were used in the following ways: Measures of frequency were used to determine how many times a specific response occurs in the data. This is represented by percentages or counts. Measures of central tendency were used to determine how typical a particular response is (Bager-Charleson & McBeath, 2022/2023). This type of analysis is beneficial in understanding the average response to the survey questions and helpful in identifying patterns in a school's safety procedures based on demographics. Researcher utilized measures of dispersion to help identify any outliers in the data.

Summary

Schools across the United States have implemented various types of lockdown and active shooter drills in an effort to prepare students and teachers for an active shooter crisis at their school. Schools also employ various safety measures, such as metal detectors, locked doors, school resource officers, and arming teachers. These drills and safety measures can have negative impacts on participants. Students, teachers, and administrators can experience adverse physical and psychological effects as a result of these drills and safety precautions.

The design used for this study is a quantitative descriptive design. This design provided the researcher with data that can be analyzed to answer the research questions to understand what safety procedures are being implemented in which types of schools, identify any patterns relating to demographics, make comparisons, and identify physical and psychological effects of these procedures on participants. The participants were school personnel employed by K-12 schools across the United States. The participants were obtained through Prolific (prolific.co). The instrument used was a survey created by the researcher. A pilot study of the survey was conducted, and the survey was revised based on feedback received. The questions in the survey align with the research questions for this study. The data were analyzed through SPSS to determine relationships, patterns, frequencies, trends, and characteristics.

Chapter Four will report the results of the study. An overview of the findings will be given using descriptive statistics. Tables and charts will be used to give a visual representation of the data. The data will be used to identify frequency, patterns, and characteristics.

CHAPTER FOUR: FINDINGS

Overview

This chapter will discuss the results of the survey distributed by Prolific and analyzed through Qualtrics. The purpose of this quantitative descriptive study was to understand the safety procedures being implemented at different types of K-12 schools across the United States. This chapter will also explain the descriptive statistics of the survey responses, including information on the demographics of the participants, the characteristics of the schools of the participants, and the types, frequency, and procedures of the active shooter drills conducted in these schools, as well as other safety measures implemented. This study sought to answer the following research questions:

RQ1: What type of active shooter drills are conducted in various public and private elementary, middle, and high schools across the United States?

RQ2: What is the frequency of active shooter drills conducted in various public and private elementary, middle, and high schools across the United States?

RQ3: What security measures are being taken at various public and private elementary, middle, and high schools across the United States?

RQ4: What are the physical and psychological effects of active shooter drills on participants with comparisons by demographics across the United States?

A 29-question survey was designed by the researcher. In addition, the survey included 3 pre-survey screening questions. The screening questions were as follows:

- Are you over the age of 18?
- Are you employed in a school for any grades from kindergarten to 12th grade?
- What is your role/position in the school?

If participants answered that they were not over the age of 18, they were taken to the end of the survey and not allowed to answer the rest of the questions. If they answered that they are not employed in a school for any grades from kindergarten to 12th grade, they were also taken to the end of the survey and not allowed to finish. For the third screening question, participants chose from possible positions in the school including teacher, administrator, counselor, classified support staff, or others. If participants chose "other," they were taken to the end of the survey and not given the opportunity to complete the survey. These screening questions assured that the participants were over 18, employed by a school for grades K-12 and in one of the positions the from which the researcher sought data. If participants could continue after the screening questions, they answered the 29-question survey. The data obtained from the survey answered the research questions.

Descriptive Statistics

Demographics of Participants

Descriptive statistics describe and represent data (Goos& Meintrup, 2015). In the case of this study, the data will come from a survey answered by 297 participants. The demographic data for the participants is displayed in the tables and figures below. As displayed in Table 1, the majority of the participants (66.33%) were female. The participants' ages ranged from 20 to 70 years old. Table 2 indicates the frequency of the different age ranges. The participants lived in various regions of the United States including Northeast, Midwest, West, and South. Figure 1 displays the location of the participants in different regions of the United States. Figure 2 provides the breakdown of the race/ethnicity of the 297 participants. The majority of the participants (79.05%) are White. Participants were asked how long they had been in their current position. The highest number of participants were newer employees, having been in their current

position for 1-3 years. Figure 3 displays the number of participants for each category showing how long the participants have been in their current position. In addition to demographic information, such as age, race/ethnicity, geographical location, and years of employment, participants were also asked if they had personally experienced a traumatic event involving their family, friends, or acquaintances related to gun violence, such as suicide, homicide, accidental or intentional shooting or a mass shooting. Of the 297 participants surveyed, 59 people (almost 10%) said they had personally experienced a traumatic event involving gun violence. This data is displayed in Table 3.

Table 1

Gender Distribution of Survey Respondents (N=297)

	Frequency	Percent
Male	100	33.67
Female	197	66.33
Total	297	100.0

Table 2

Age Range of Survey Respondents (N=297)

	Frequency	Percent
18-25	27	9.09
26-35	98	33
36-45	90	30.3
46-55	50	16.84
56-65	28	9.43
Over 65	4	1.35
Total	297	100.0

Figure 1

Regional Location in the United States of Survey Respondents (N = 297)

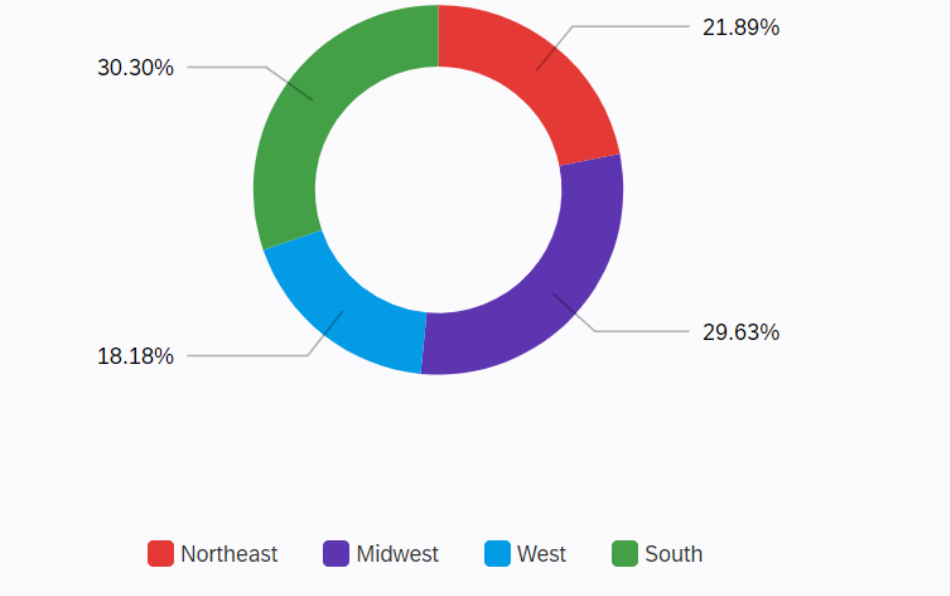


Figure 2

Race/Ethnicity of Participants (N = 297)

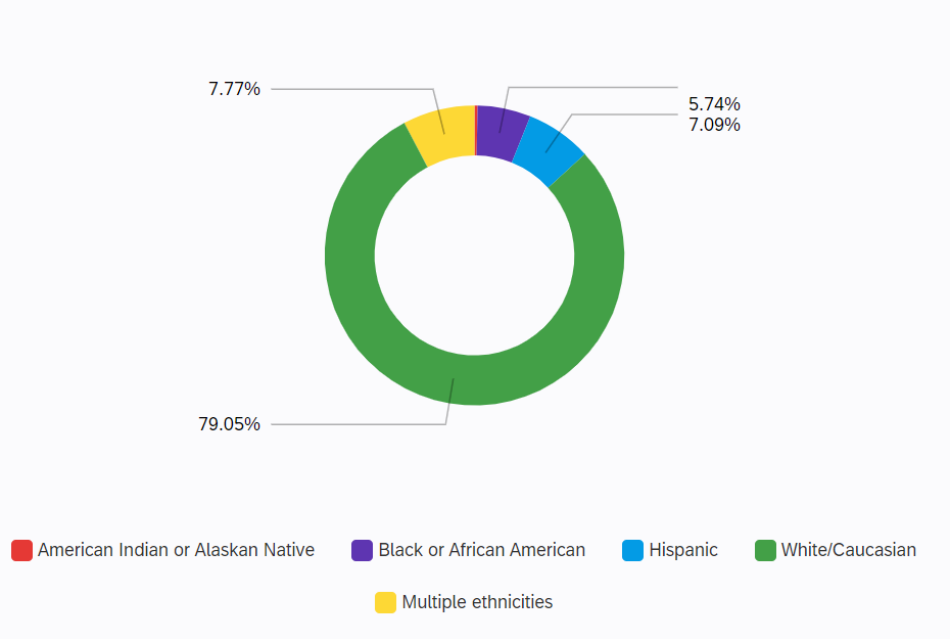


Figure 3

Employment Time in Current Position (N = 297)

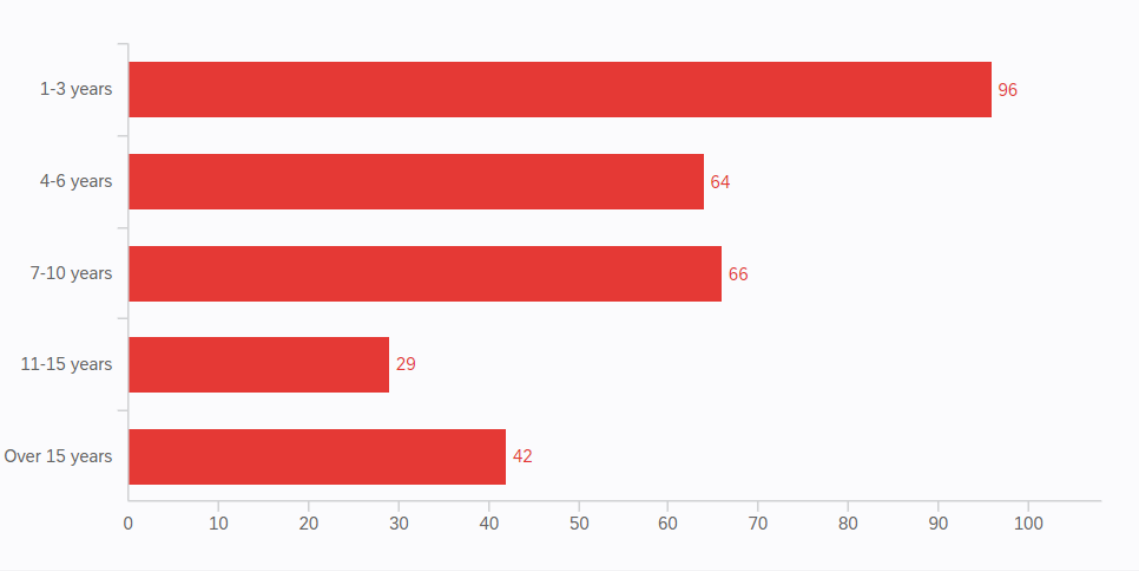


Table 3

Participants Who Had Experienced a Past Traumatic Event Involving Gun Violence (N=297)

	Frequency	Percent
Yes	29	9.76
No	268	90.24
Total	297	100.0

Characteristics of Schools

The participants answered questions about the characteristics of their schools including whether their school is public or private, if their school is a preschool, an elementary, middle, or high school, and if their school is considered a rural school, an urban school, or a suburban

school. The participants were asked to check all descriptions that apply to their current school. Figure 4 shows the distribution of answers given. Participants were also asked the socioeconomic status of their schools. This status is measured by the percentage of students receiving free/reduced meals at school. Because of its universality, participation in free/reduced meals at school is the most used way to measure student socioeconomic status for school funding (Greenberg et al., 2019). Table 5 displays the data for socioeconomic status of the schools. The researcher was interested in finding out if the participant's school had ever experienced an active shooter event. Of the 297 participants surveyed, 29 (almost 10%) said their school had experienced an active shooter event. Figure 5 displays this data.

Figure 4

Types of Schools of Participants (N = 297)

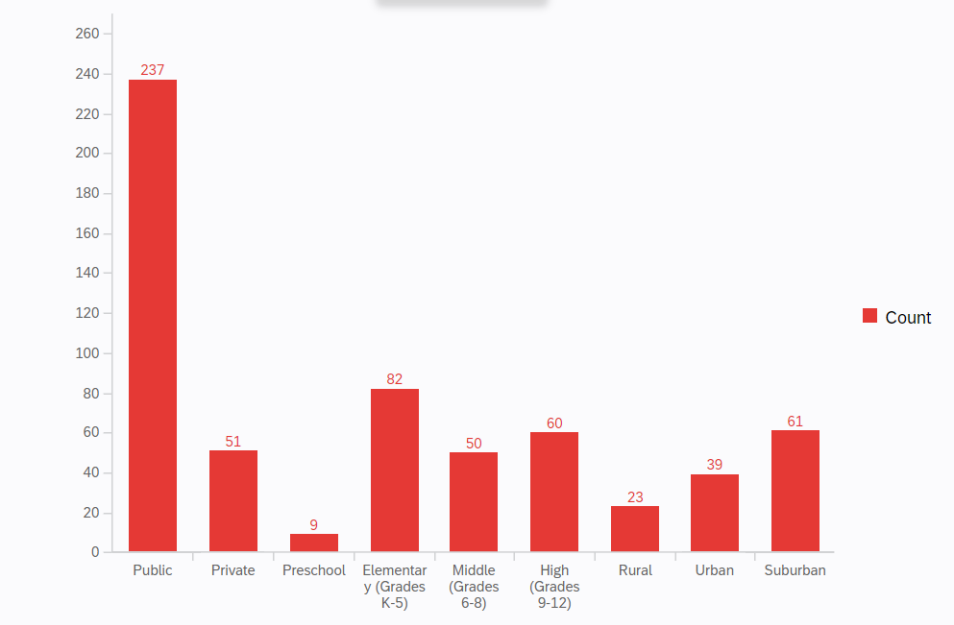


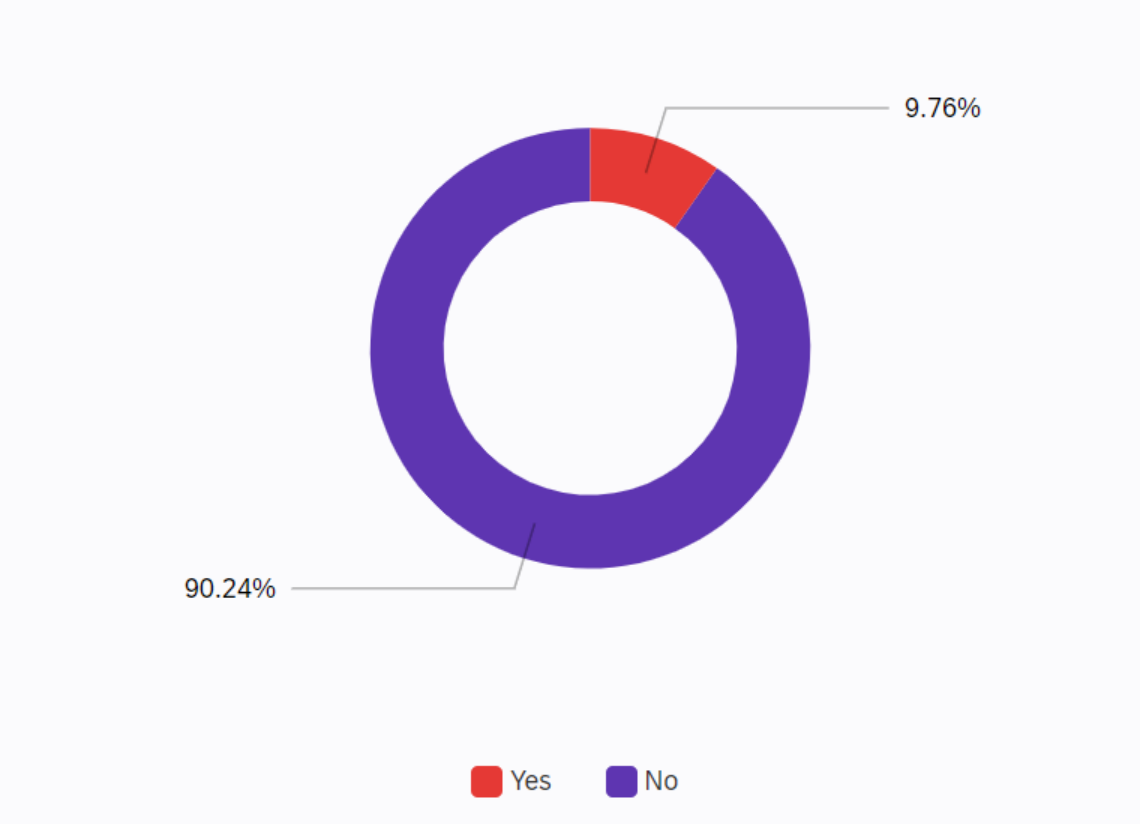
Table 4

Socioeconomic Status of the Schools as Measured by Percentage of Free/Reduced Meals (N = 296, 1 participant did not answer)

	Frequency	Percent
Under 25%	73	24.66
26%-50%	78	26.35
51%-75%	45	15.20
Over 76%	69	23.31
Do not know	31	10.47
Total	296	100.0

Figure 5

Percentage of Participants whose Schools have Experienced an Active Shooter Event (N=297)



Results

The researcher set out to answer the following research questions:

RQ1: What type of active shooter drills are conducted in various public and private elementary, middle, and high schools across the United States?

RQ2: What is the frequency of active shooter drills conducted in various public and private elementary, middle, and high schools across the United States?

RQ3: What security measures are being taken at various public and private elementary, middle, and high schools across the United States?

RQ4: What are the physical and psychological effects of active shooter drills on participants a with comparisons by demographics across the United States?

What type of active shooter drills are conducted in various public and private elementary, middle, and high schools across the United States?

Types of Active Shooter Drills Conducted

There are a variety of active shooter drills being conducted at public and private, elementary, middle, and high schools across the United States. These drills include lockdown drills where students hide and are quiet in the classroom; multi-response drills where students are given options of hiding, fighting back, or running; and active simulations drills with role playing of active shooter events. The participants were asked which type of active shooter drills their schools conducted. They were asked to check all that applied, meaning a school could conduct more than one type of drill. An overwhelming majority of participants (264) said their schools implement lockdown drills where students hide and are quiet in the classroom. Nineteen participants said their schools did not conduct any type of active shooter drills and 3 participants did not know what type of drills their school conducts. The survey results show that most schools (71.54%) conduct lockdown drills, where students are quiet and hide in their classroom. Multi-response active shooter drills where students are given options, such as hiding, fighting back, or

running are conducted by 12.20% of the schools and active shooter simulations with role playing of active shooter events are conducted at 10.3% of the schools. From the 297 participants, there were 369 responses to this question, indicating that schools may conduct more than one type of active shooter drills with their students. Figure 6 displays this data. The researcher asked whether the participants' schools differentiated the active shooter drills for younger or neuro-diverse students. The majority of participants (60%) said that their school does not differentiate the drills, while 18% of participants said their school does differentiate the drills for younger or neuro-diverse students;22% of participants did not know whether their school differentiates the drills or not. Figure 7 displays this data.

Figure 6

Types of Active Shooter Drills Conducted

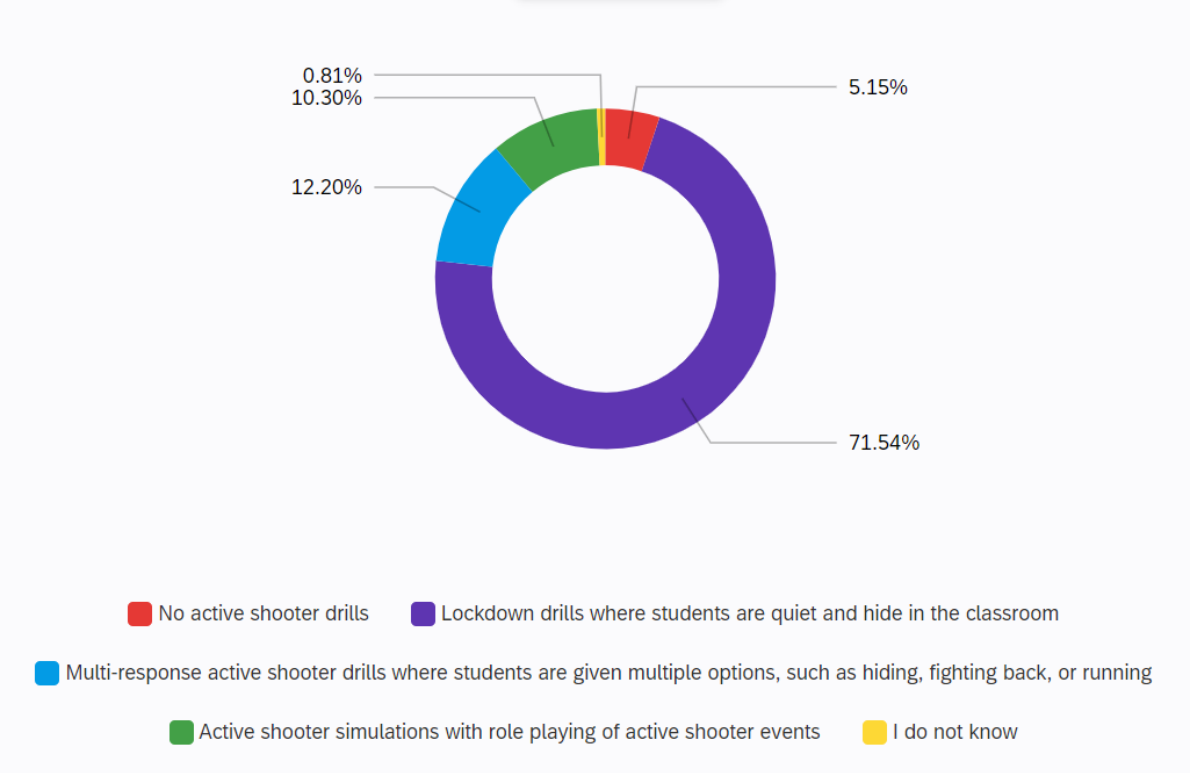
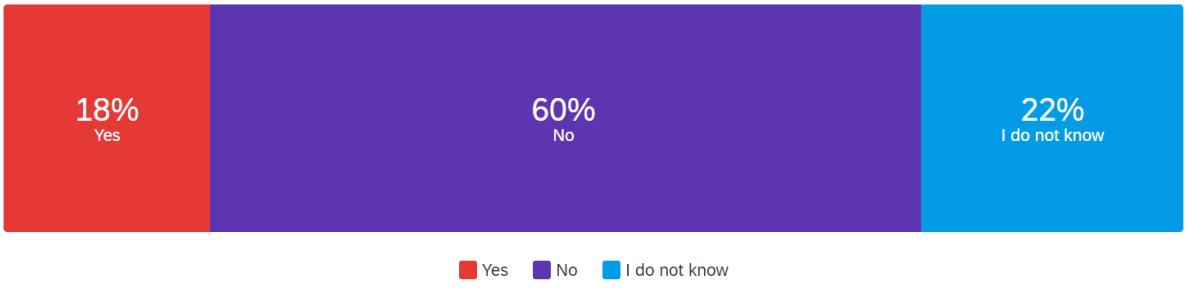


Figure 7

Percentage of Schools That Differentiate Active Shooter Drills for Neuro-Diverse or Younger Students



Types of Active Shooter Drills Compared to School Type

The researcher was interested in finding out which types of schools conducted each type of the various active shooter drills. The different types of schools surveyed include public, private, preschool, elementary, middle, high, rural, urban, or suburban schools. The types of active shooter drills that the participants could choose from include lockdown drills where students are quiet and hide in the classroom; multi-response drills where students are given multiple options, such as hiding, fighting back, or running; active shooter simulations with role playing of active shooter events, or no active shooter drills. The participants could also answer that they do not know what type of active shooter drills their school conducts. Of the participants who are employed by a public school, an overwhelming majority (93%) indicated their school

conducts lockdown drills where students hide quietly in their classroom. Multi-response drills where students are given options, such as hiding, fighting back, or running are conducted by 16%, and active shooter simulations with role playing of active shooter events are conducted by 13.5% of the public schools. A small percentage (3.8%) do not conduct active shooter drills and 0.8% or 2 participants did not know what type of active shooter drills their school conducts. This information is displayed in Figure 8. Of the participants who work in a private school, 70.6% indicated that their school conducts lockdown drills, while 13.7% answered that they conduct multi-response drills, and 11.8% conduct active shooter simulations. A higher percentage (15.7%) of private schools, when compared to public schools (3.8%), do not conduct active shooter drills. Two percent of participants who work in a private school did not know what type of active shooter drills their schools conduct. This data is displayed in Figure 9.

Figure 8

Types of Active Shooter Drills Conducted by Public Schools

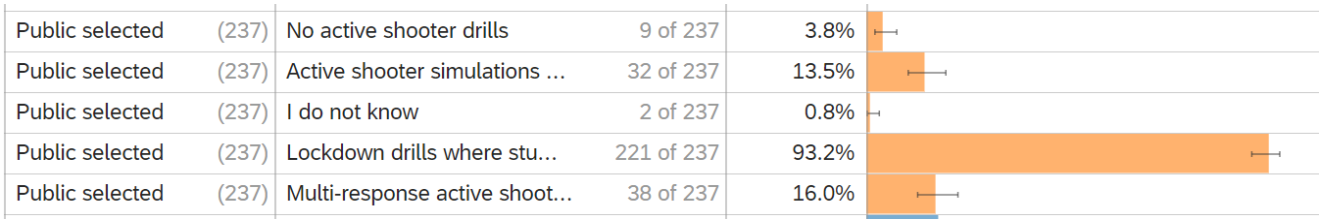
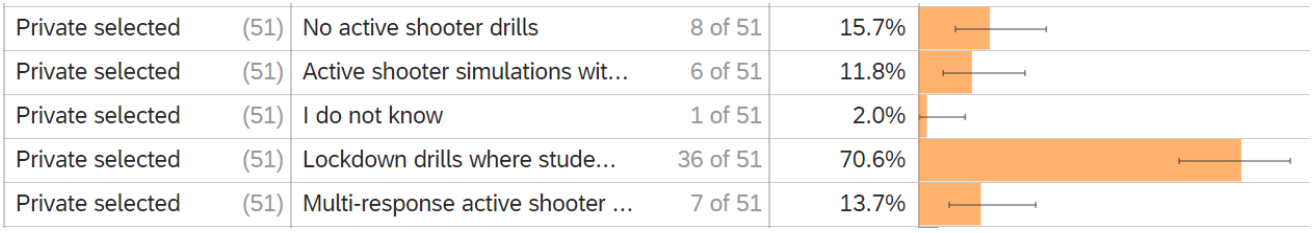


Figure 9

Types of Active Shooter Drills Conducted by Private Schools



Participants were asked whether their schools are urban, suburban, or rural. Of the participants who selected their school as urban, 89.7% reported their schools conducting lockdown drills, with 12.8% conducting multi-response drills, and 7.7% conducting active shooter simulations. Five percent of the urban schools do not conduct active shooter drills and 5% of the participants did not know which type of active shooter drills their school conducts. This data is displayed in Figure 10. Of the participants who selected their school as suburban, 85.2% said their schools conduct lockdown drills compared with 21.3% who said their schools conduct multi-response drills, and 16.4% who said their schools conduct active shooter simulations. Participants report 3.3% of suburban schools do not conduct active shooter drills. Figure 11 displays these responses. Lockdown drills are conducted by 91.3% of rural schools. Participants of rural schools indicated 21.7% of their schools participate in multi-response drills. Interestingly, the same percentage, 21.7%, conduct active shooter simulations. Of the participants who indicated they work in a rural school, 4.3% indicated that their school does not conduct active shooter drills. This data is displayed in Figure 12.

Figure 10

Types of Active Shooter Drills Conducted by Urban Schools

Figure 11

Types of Active Shooter Drills Conducted by Suburban Schools

Suburban selected	(61)	No active shooter drills	2 of 61	3.3%	
Suburban selected	(61)	Active shooter simulations wit...	10 of 61	16.4%	
Suburban selected	(61)	I do not know	0 of 61	0.0%	
Suburban selected	(61)	Lockdown drills where stude...	52 of 61	85.2%	
Suburban selected	(61)	Multi-response active shooter...	13 of 61	21.3%	

Figure 12

Types of Active Shooter Drills Conducted by Rural Schools

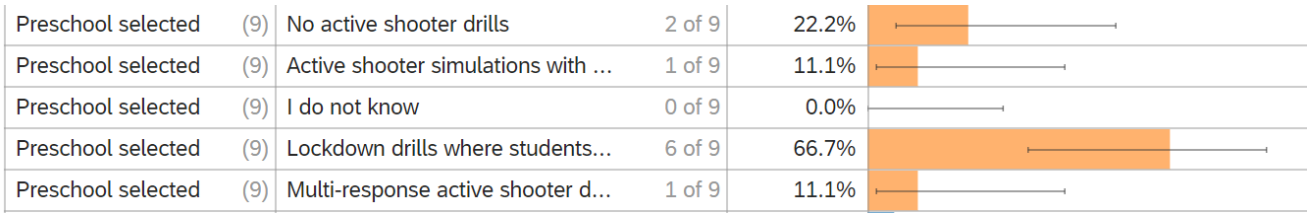
Rural selected	(23)	No active shooter drills	1 of 23	4.3%	
Rural selected	(23)	Active shooter simulations wit...	5 of 23	21.7%	
Rural selected	(23)	I do not know	0 of 23	0.0%	
Rural selected	(23)	Lockdown drills where stude...	21 of 23	91.3%	
Rural selected	(23)	Multi-response active shooter ...	5 of 23	21.7%	

Survey participants work in preschools, elementary schools, middle schools, and high schools. The researcher was interested in understanding which types of active shooter drills are conducted at various school levels. When looking at the type of drills, the survey results show that lockdown drills are conducted in 66.7% of preschools, 84.1% of elementary schools, 88% of middle schools, and 88.3% of high schools. Multi-response drills are conducted at 11.1% of preschools, 22% of elementary schools, 18% of middle schools, and 16.7% of high schools. Active shooter simulations are conducted at 11.1% of preschools, 14.6% of elementary schools, 24% of middle schools, and 15% of high schools. When comparing the schools that do not conduct active shooter drills, 22.2% of participants who work in a preschool said their school does not conduct these types of drills, while 6.1% of elementary schools do not, 8% of middle

schools do not, and 3.3% of high schools do not conduct active shooter drills. This data is represented in figures 13,14, 15, and 16.

Figure 13

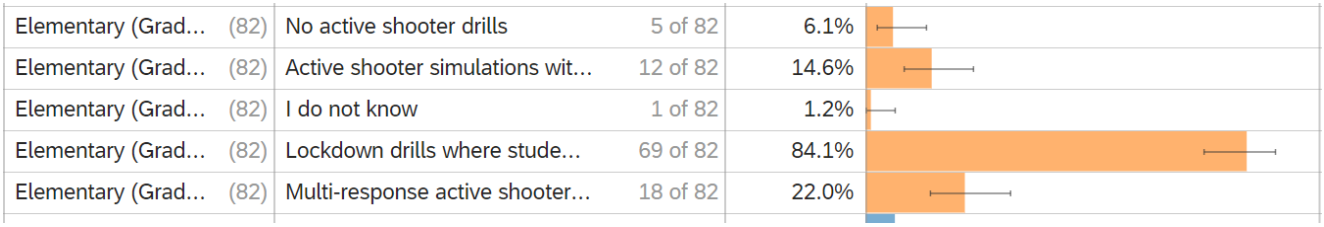
Types of Active Shooter Drills Conducted in Preschools



Preschool selected	(9)	No active shooter drills	2 of 9	22.2%	
Preschool selected	(9)	Active shooter simulations with ...	1 of 9	11.1%	
Preschool selected	(9)	I do not know	0 of 9	0.0%	
Preschool selected	(9)	Lockdown drills where students...	6 of 9	66.7%	
Preschool selected	(9)	Multi-response active shooter d...	1 of 9	11.1%	

Figure 14

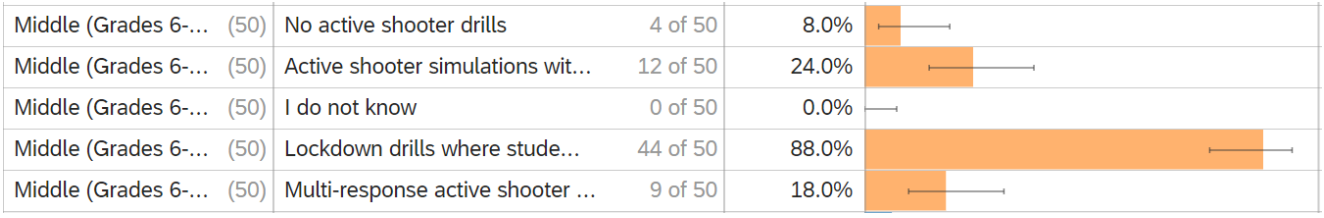
Types of Active Shooter Drills Conducted in Elementary Schools



Elementary (Grad...	(82)	No active shooter drills	5 of 82	6.1%	
Elementary (Grad...	(82)	Active shooter simulations wit...	12 of 82	14.6%	
Elementary (Grad...	(82)	I do not know	1 of 82	1.2%	
Elementary (Grad...	(82)	Lockdown drills where stude...	69 of 82	84.1%	
Elementary (Grad...	(82)	Multi-response active shooter...	18 of 82	22.0%	

Figure 15

Types of Active Shooter Drills Conducted in Middle Schools



Middle (Grades 6-...	(50)	No active shooter drills	4 of 50	8.0%	
Middle (Grades 6-...	(50)	Active shooter simulations wit...	12 of 50	24.0%	
Middle (Grades 6-...	(50)	I do not know	0 of 50	0.0%	
Middle (Grades 6-...	(50)	Lockdown drills where stude...	44 of 50	88.0%	
Middle (Grades 6-...	(50)	Multi-response active shooter ...	9 of 50	18.0%	

Figure 16

Types of Active Shooter Drills Conducted in High Schools

High (Grades 9-12...	(60)	No active shooter drills	2 of 60	3.3%
High (Grades 9-12...	(60)	Active shooter simulations wit...	9 of 60	15.0%
High (Grades 9-12...	(60)	I do not know	1 of 60	1.7%
High (Grades 9-12...	(60)	Lockdown drills where stude...	53 of 60	88.3%
High (Grades 9-12...	(60)	Multi-response active shooter...	10 of 60	16.7%

Types of Active Shooter Drills Compared to Regional Location in the United States

Participants were asked which region in the United States they are located in. They chose from Midwest, Northeast, South, and West. The researcher was interested in finding out which types of active shooter drills are conducted in the various regions of the United States. The percentage of schools that conduct lockdown drills is similar in the four regions with 85.2% of Midwest schools conducting these types of drills, 89.2% of Northeast schools., 94.4% of Southern schools, and 85.2% of Western schools conducting lockdown drills, where students hide quietly in their classroom. Multi-response drills, where students are given options, such as hiding, fighting back, or running are conducted by 25% of Midwest schools, 12.3% of Northeast schools, 11.1% of Southern schools, and 9.3% of Western schools. Active shooter simulations with role playing of active shooter events are conducted at 17% of Midwest schools, 9.2% of Northeast schools, 14.4% of Southern schools, and 7.4% of Western schools. No active shooter drills are conducted at 4.5% of Midwest schools, 6.2% of Northeast schools, 5.6% of Southern schools, and 11.1% of Western schools. These survey results are displayed in Figure 17.

Figure 17

Types of Active Shooter Drills Conducted in Various Regions of the United States

Midwest	(88)	Active shooter simulations wit...	15 of 88	17.0%	
Midwest	(88)	I do not know	1 of 88	1.1%	6.2%
Midwest	(88)	Lockdown drills where stude...	75 of 88	85.2%	
Midwest	(88)	Multi-response active shooter...	22 of 88	25.0%	
Midwest	(88)	No active shooter drills	4 of 88	4.5%	
Northeast	(65)	Active shooter simulations wit...	6 of 65	9.2%	
Northeast	(65)	I do not know	2 of 65	3.1%	
Northeast	(65)	Lockdown drills where stude...	58 of 65	89.2%	
Northeast	(65)	Multi-response active shooter ...	8 of 65	12.3%	
Northeast	(65)	No active shooter drills	4 of 65	6.2%	
South	(90)	Active shooter simulations wit...	13 of 90	14.4%	
South	(90)	I do not know	0 of 90	0.0%	
South	(90)	Lockdown drills where stude...	85 of 90	94.4%	
South	(90)	Multi-response active shooter...	10 of 90	11.1%	
South	(90)	No active shooter drills	5 of 90	5.6%	
West	(54)	Active shooter simulations wit...	4 of 54	7.4%	
West	(54)	I do not know	0 of 54	0.0%	
West	(54)	Lockdown drills where stude...	46 of 54	85.2%	
West	(54)	Multi-response active shooter ...	5 of 54	9.3%	
West	(54)	No active shooter drills	6 of 54	11.1%	

What is the frequency of active shooter drills conducted in various public and private elementary, middle, and high schools across the United States?

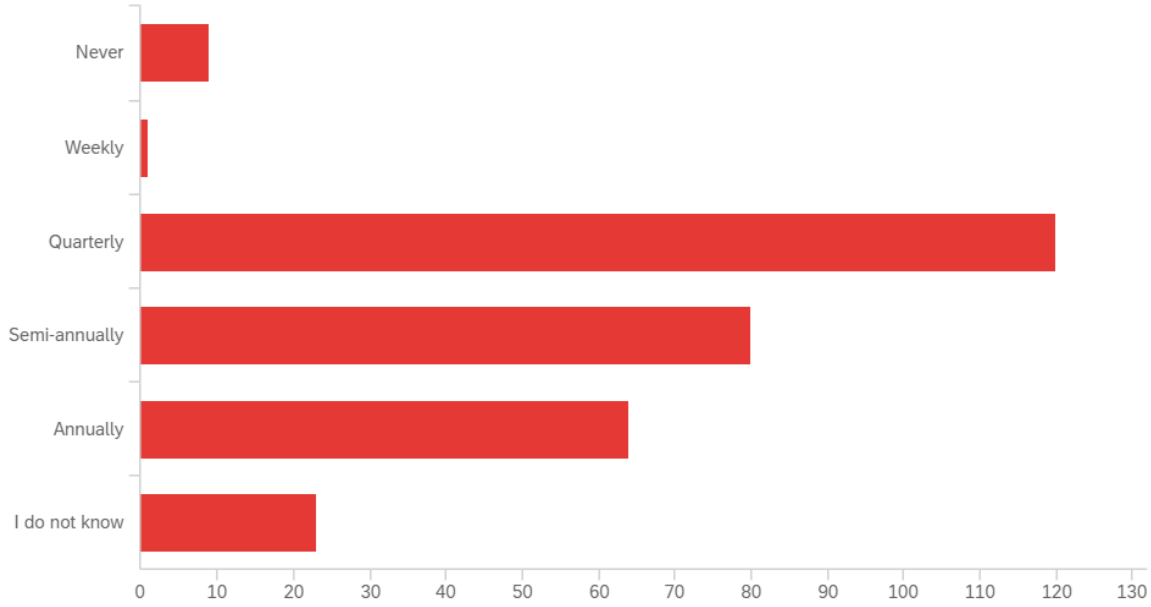
Frequency of Active Shooter Drills

Over forty percent of participants said the active shooter drills conducted at their schools occur quarterly. Almost twenty-seven percent (26.94%) indicated that their school conducts these drills twice per school year and 21.55% indicated these drills are only conducted once per year. One participant said their school conducts weekly drills and 23 participants did not know the frequency of the drills. Nine participants said their school never conducts active shooter

drills. Figure 18 represents the distribution of answers regarding the frequency of active shooter drills.

Figure 18

Frequency of Active Shooter Drills



Frequency of Active Shooter Drills Compared to School Type

The researcher was interested in comparing the frequency of active shooter drills with the school type. In addition, comparisons were made between public and private schools; urban, suburban, and rural schools; and preschool, elementary, middle, and high schools. Of the participants who are employed in public schools, 1.3% said they do not have active shooter drills at their school, 0.4% said these drills are conducted weekly, 41.4% said the drills are conducted quarterly, 27.8% said the drills are conducted semi-annually, 22.1% said the drill are conducted annually, and 8% did not know the frequency of active shooter drills at their schools. For the participants who are employed in private schools, 9.8% said they do not conduct active shooter drills at their schools, none of the participants said the drills are conducted weekly, 33.3%

indicated the drills are conducted quarterly, 23.5% said the drills are conducted semi-annually, 23.5% said the drills are conducted annually, and 5.9% did not know how often active shooter drills are conducted at their schools. The most notable difference between the frequency of active shooter drills in public and private schools is that almost 10% of private schools said they never conduct active shooter drills compared to 1.3% of public schools. This data is displayed in Figures 19 and 20.

Comparisons were also made between the frequency of active shooter drills and whether the school was considered urban, suburban, or rural. Of the participants who said they work in an urban school, none of them chose that their school never conducts drills or that the drills are conducted weekly, 41% said that the drills are conducted quarterly, 20.5% said the drills are conducted semi-annually, 25.6% said the drills are conducted annually, and 12.8% did not know the frequency of active shooter drills at their schools. Of the participants who indicated they work in a suburban school, no participants chose that their school never conducts active shooter drills or conducts them weekly, 47.5% indicated the drills are conducted quarterly, 29.5% said they are conducted semi-annually, 19.7% indicated annually, and 3.3% did not know the frequency of the drills. For the participants who work in a rural school, 4.3% said their school never conducts active shooter drills, none of them chose weekly as the frequency, 17.4% indicated quarterly, 43.5% indicated semi-annually, 30.4% indicated annually, and 4.3% did not know the frequency of the drills. Figures 21, 22, and 23 display this data.

Comparing the frequency of active shooter drills across the different grade levels, 11.1% of participants who work in a preschool said their school never conducts active shooter drills, compared with 1.2% in elementary school, 4% in middle schools, and 1.7% of participants who work in high schools. None of the grade levels said their school conducts drills weekly. Drills

being conducted quarterly were indicated by 55.6% of preschools, 37.8% of elementary schools, 40% of middle schools, and 31.7% of high schools. Participants who said active shooter drills are conducted semi-annually were 0% of preschools, 29.3% of elementary schools, 34% of middle schools, and 33.3% of high schools. Annual drills are conducted by 33.3% of preschools, 26.8% of elementary schools, 18% of middle schools, and 26.7% of high schools. Participants who do not know the frequency of the drills conducted at their schools include 4.9% of participants who work in elementary schools, 4% of participants in middle schools, and 6.7% of participants in high schools. This information is displayed in Figures 24, 25, 26, and 27.

Figure 19

Frequency of Active Shooter Drills in Public Schools

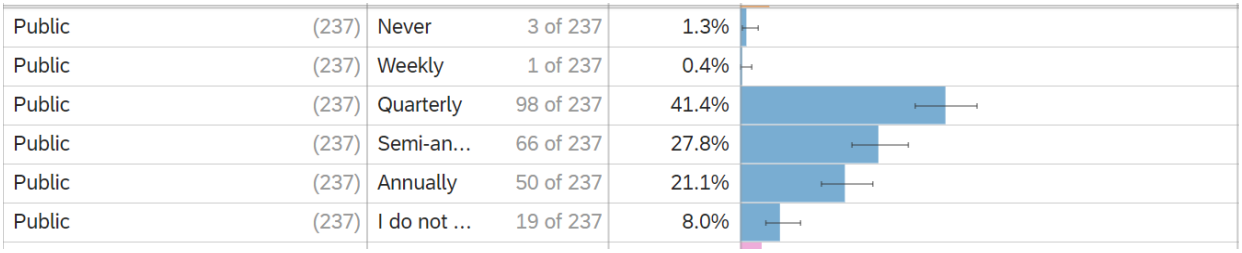


Figure 20

Frequency of Active Shooter Drills in Private Schools

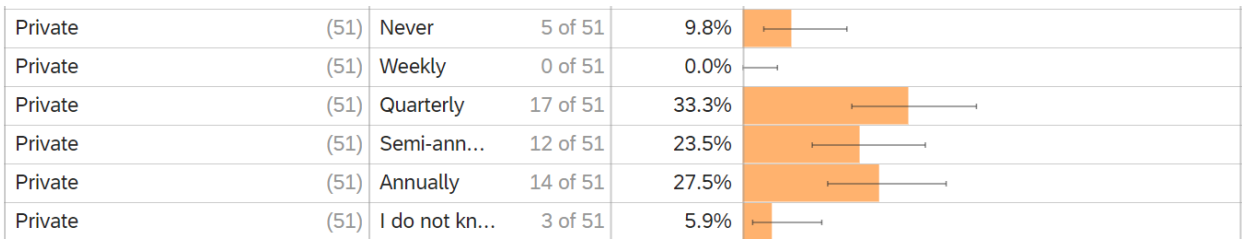


Figure 21

Frequency of Active Shooter Drills in Urban Schools

Urban	(39)	Never	0 of 39	0.0%
Urban	(39)	Weekly	0 of 39	0.0%
Urban	(39)	Quarterly	16 of 39	41.0%
Urban	(39)	Semi-annu...	8 of 39	20.5%
Urban	(39)	Annually	10 of 39	25.6%
Urban	(39)	I do not kn...	5 of 39	12.8%

Figure 22

Frequency of Active Shooter Drills in Suburban Schools

Suburban	(61)	Never	0 of 61	0.0%
Suburban	(61)	Weekly	0 of 61	0.0%
Suburban	(61)	Quarterly	29 of 61	47.5%
Suburban	(61)	Semi-ann...	18 of 61	29.5%
Suburban	(61)	Annually	12 of 61	19.7%
Suburban	(61)	I do not kn...	2 of 61	3.3%

Figure 23

Frequency of Active Shooter Drills in Rural Schools

Rural	(23)	Never	1 of 23	4.3%
Rural	(23)	Weekly	0 of 23	0.0%
Rural	(23)	Quarterly	4 of 23	17.4%
Rural	(23)	Semi-ann...	10 of 23	43.5%
Rural	(23)	Annually	7 of 23	30.4%
Rural	(23)	I do not kn...	1 of 23	4.3%

Figure 24

Frequency of Active Shooter Drills in Preschools

Preschool	(9)	Never	1 of 9	11.1%
Preschool	(9)	Weekly	0 of 9	0.0%
Preschool	(9)	Quarterly	5 of 9	55.6%
Preschool	(9)	Semi-annua...	0 of 9	0.0%
Preschool	(9)	Annually	3 of 9	33.3%
Preschool	(9)	I do not know	0 of 9	0.0%

29.9%

Figure 25

Frequency of Active Shooter Drills in Elementary Schools

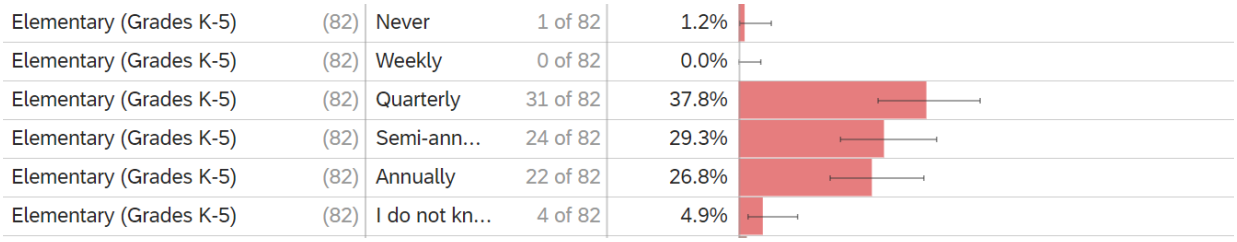


Figure 26

Frequency of Active Shooter Drills in Middle Schools

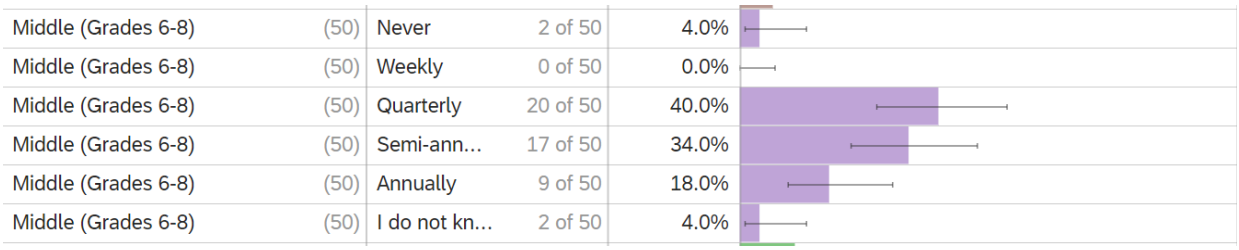
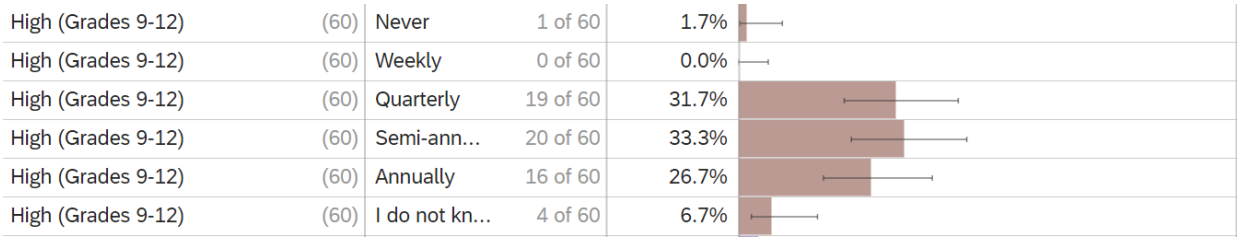


Figure 27

Frequency of Active Shooter Drills in High Schools



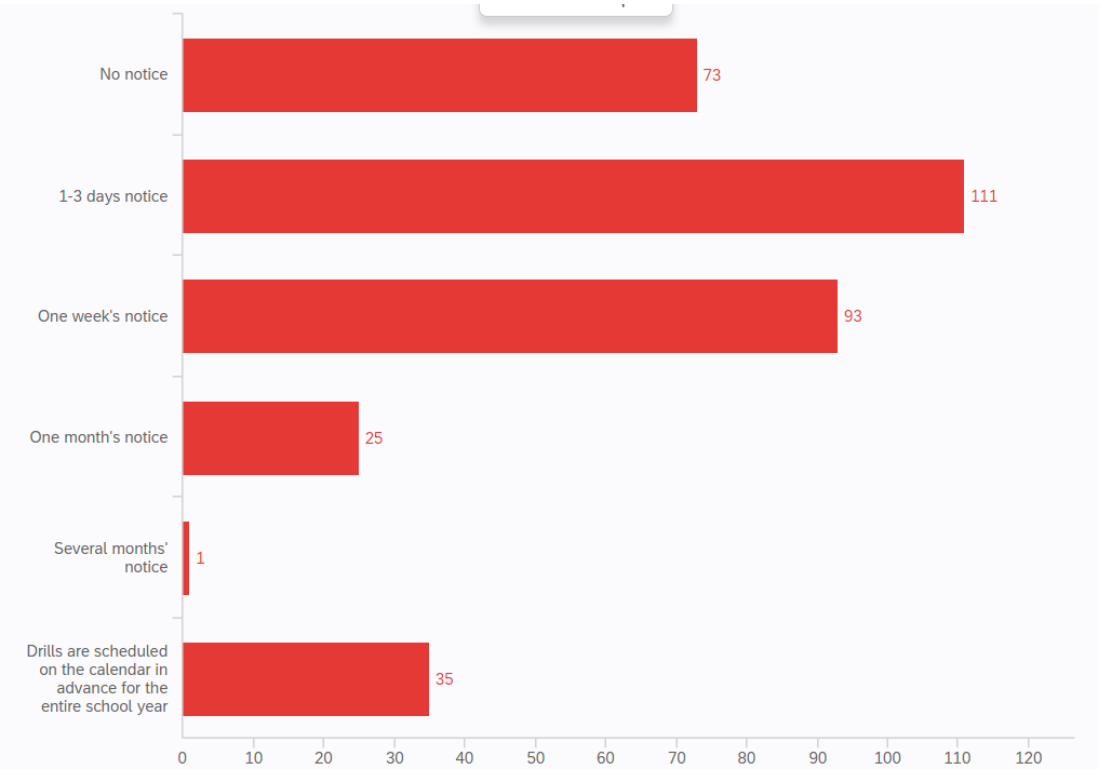
Advance Notice of Active Shooter Drills

Participants were asked if they were given advance notice of the drills and if so, how much notice they were given. More participants (111) said they were given 1-3 days notice before an active shooter drill was conducted. The next most common answer was a one-week notice reported by 93 participants. One participant indicated they were given several months'

notice and 73 participants related they were not given any notice before the drills were conducted, while 35 participants responded the active shooter drills are on the calendar for the entire school year. Figure 28 displays the amount of advance notice participants are given for an active shooter drill in their schools.

Figure 28

Advance Notice of Active Shooter Drills



Announcement of Active Shooter Drills

Active shooter drills can be announced in a variety of ways including over the intercom, texting, email, phone calls or other telecommunication, and/or a system with lights and sound (similar to a fire drill). Participants were asked how the active shooter drills in their schools were announced and asked to check all the ways that applied. Schools could use more than one way to

alert students and staff of an active shooter drill. Figure 29 displays the various ways active shooter drills are announced in the participants' schools. Participants were also asked if their school offers the option to teachers, staff, or students of opting out of participating in the drills. An overwhelming majority of participants (244/297) said their school does not offer the option of opting out of the drills. Less than five percent 13/297) said their school does offer the option to opt out of participating in the drills, while 40 participants did not know if their school offered such an option. Participants were asked if they ever stayed home from school to avoid participating in an active shooter drill. A very small percentage (2% occasionally and 3% rarely) responded that they have stayed home to avoid an active shooter drill. Figure 30 displays this data.

Figure 29

How Active Shooter Drills Are Announced

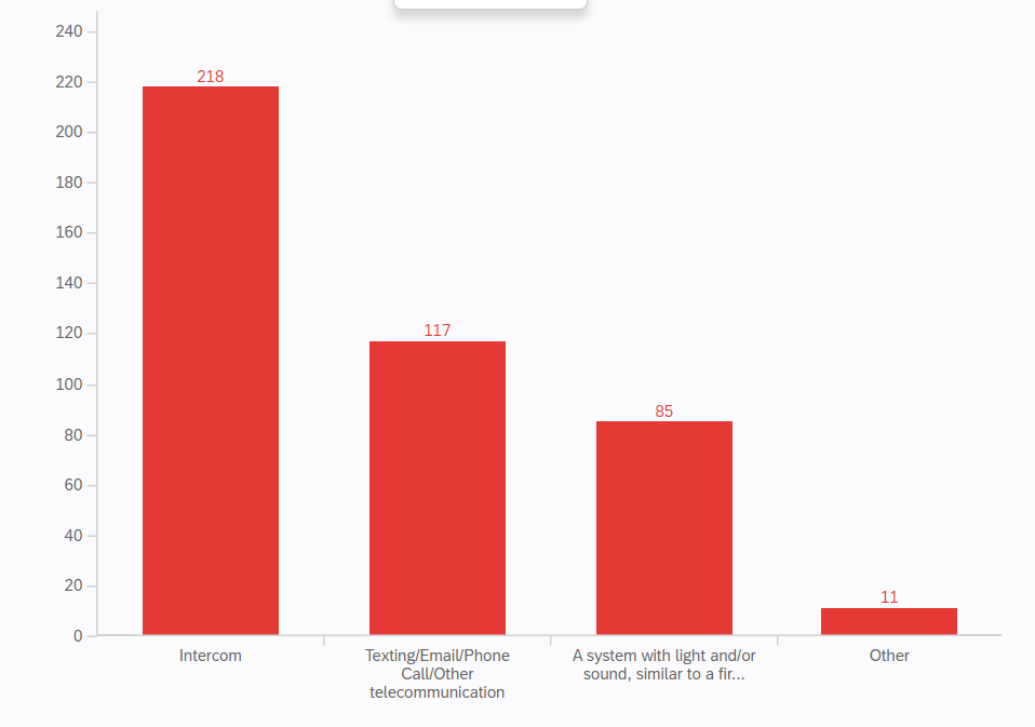
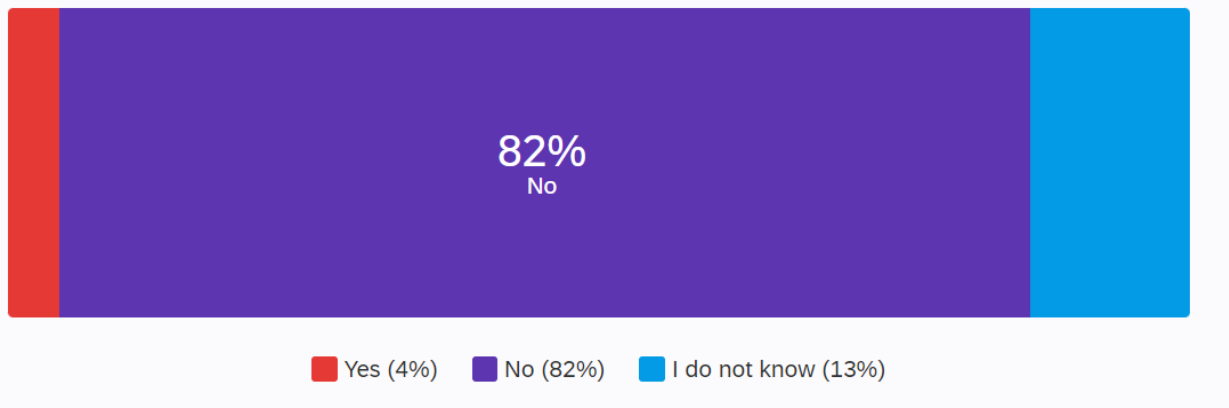


Figure 30

Schools Offering the Option to Teachers, Staff, and Students to Opt out of Participating in an Active Shooter Drill



What security measures are being taken at various public and private elementary, middle, and high schools across the United States?

Security Measures

In addition to active shooter drills, many schools have other safety measures put in place such as a policy to keep classroom doors locked, metal detectors, arming teachers, safety and reunification plans, and on-campus school resource or security officers. Participants were asked what safety measures their school had in place. Most participants (253 out of 297) indicated their schools do not have metal detectors. Figure 31 displays this data. When looking at this data by school type, all participants who worked in preschools or private schools indicated that their schools do not have metal detectors. Metal detectors are in 15.7% of participants' schools who work in public schools and 23.7% of urban schools. This data is displayed in Figure 32. Over 58% of participants said their schools do have a policy of keeping their classroom doors locked. Some of the participants did not know whether their school had such a policy or not. Figure 33 shows these responses. Comparisons were made between different types of schools and their policy to keep classroom doors locked. Over 60% of participants who worked in public schools said their schools have a policy of keeping classroom doors locked compared to 43.1% of private schools. Participants who worked in preschools indicated that 44.4% of their schools have such a policy, while the percentages are higher and closer together for elementary, middle, and high with 57.3%, 55%, and 60%, respectively. More rural schools (69.6%) than urban (51.3%) have a policy to keep their classroom doors locked. Figure 34 shows these comparisons. An overwhelming majority of schools have security cameras. Of the 297 participants, 267 said they had security cameras, as displayed in Figure 35. When comparing the different types of schools, the notable difference is that 78% of rural schools have security cameras compared to the other types of schools ranging from 82% to 92%. This comparison is displayed in Figure 36. Most schools (82.49%) do not arm their teachers (Figure 37). When comparing types of schools whose teachers or administrators are armed, the highest percentage is from private schools with almost

6%. Figure 38 displays this data. Over 65% of schools surveyed had an on-campus school resource or security officer. Table 6 shows the participants' responses about having an on-campus school resource of security officer. Of the participants who said they worked in a public school, 68.8% said their school has an on-campus school resource officer compared to 48.1% of participants who worked in a private school. It is notable that participants who worked in rural schools indicated that 73.9% of their schools had school resource officers, the highest percentage among school types. These comparisons are shown in Figure 39.

Figure 31

Metal Detectors in Schools

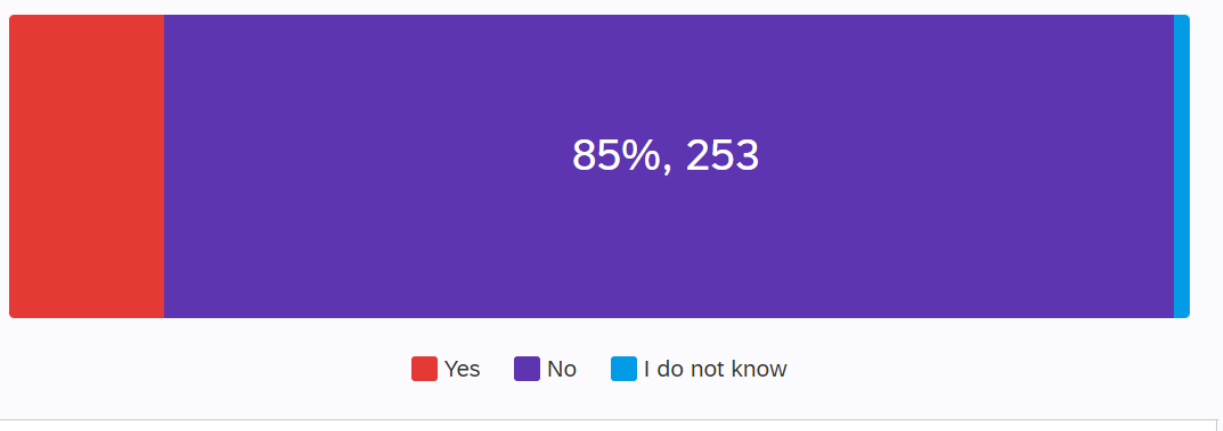


Figure 32

Metal Detectors in Schools by School Type

Elementary (Grades K-5)	(82)	Yes	9 of 82	11.0%	
High (Grades 9-12)	(60)	Yes	6 of 60	10.0%	
Middle (Grades 6-8)	(50)	Yes	6 of 50	12.0%	
Preschool	(9)	Yes	0 of 9	0.0%	
Private	(51)	Yes	0 of 51	0.0%	
Public	(236)	Yes	37 of 236	15.7%	
Rural	(23)	Yes	2 of 23	8.7%	
Suburban	(61)	Yes	5 of 61	8.2%	
Urban	(38)	Yes	9 of 38	23.7%	

Figure 33

Policy of Keeping Classroom Doors Locked

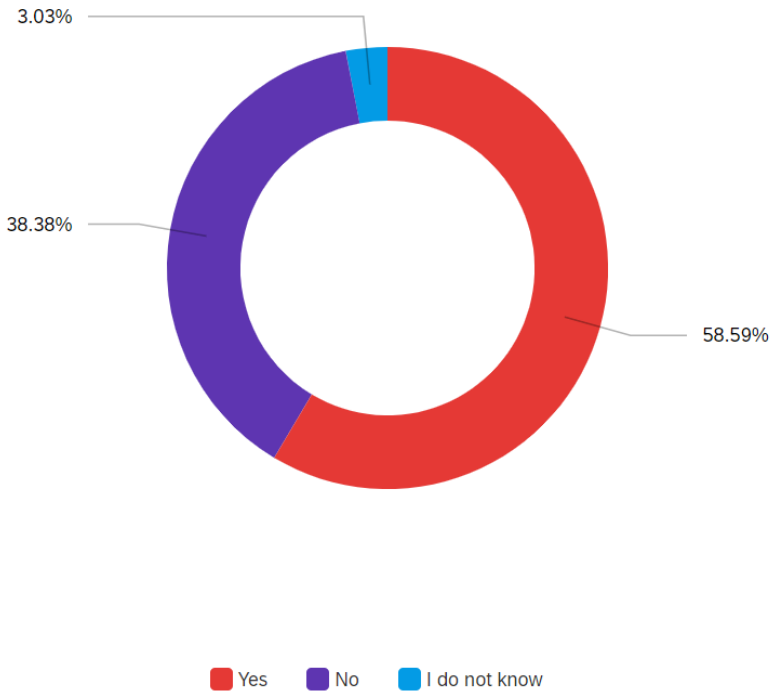


Figure 34

Policy of Keeping Classroom Doors Locked by School Type

Elementary (Grades K-5)	(82)	Yes	47 of 82	57.3%
High (Grades 9-12)	(60)	Yes	33 of 60	55.0%
Middle (Grades 6-8)	(50)	Yes	30 of 50	60.0%
Preschool	(9)	Yes	4 of 9	44.4%
Private	(51)	Yes	22 of 51	43.1%
Public	(237)	Yes	146 of 237	61.6%
Rural	(23)	Yes	16 of 23	69.6%
Suburban	(61)	Yes	35 of 61	57.4%
Urban	(39)	Yes	20 of 39	51.3%

Figure 35

Security Cameras in Schools

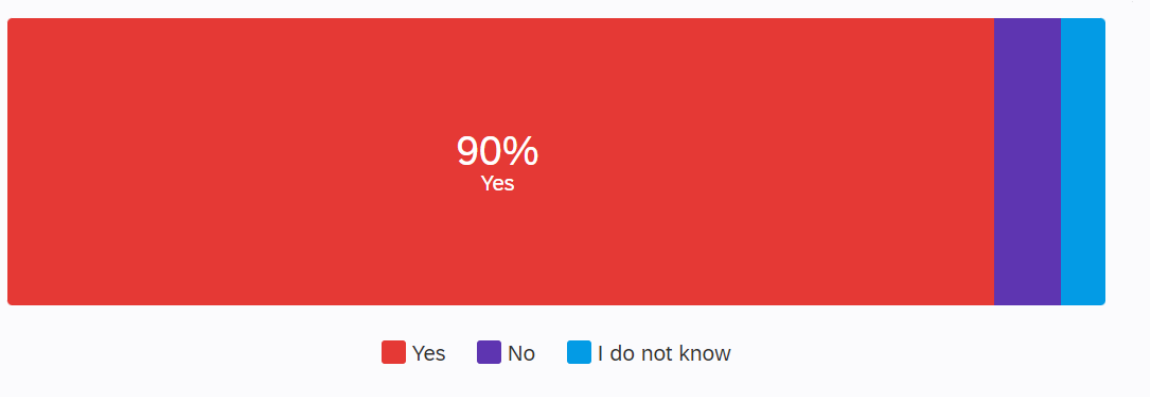


Figure 36

Security Cameras in Schools by School Type

Elementary (Grades K-5)	(82)	Yes	71 of 82	86.6%
High (Grades 9-12)	(60)	Yes	51 of 60	85.0%
Middle (Grades 6-8)	(50)	Yes	46 of 50	92.0%
Preschool	(9)	Yes	8 of 9	88.9%
Private	(51)	Yes	46 of 51	90.2%
Public	(237)	Yes	214 of 237	90.3%
Rural	(23)	Yes	18 of 23	78.3%
Suburban	(61)	Yes	56 of 61	91.8%
Urban	(39)	Yes	32 of 39	82.1%

Figure 37

Arming Teachers/Administrators

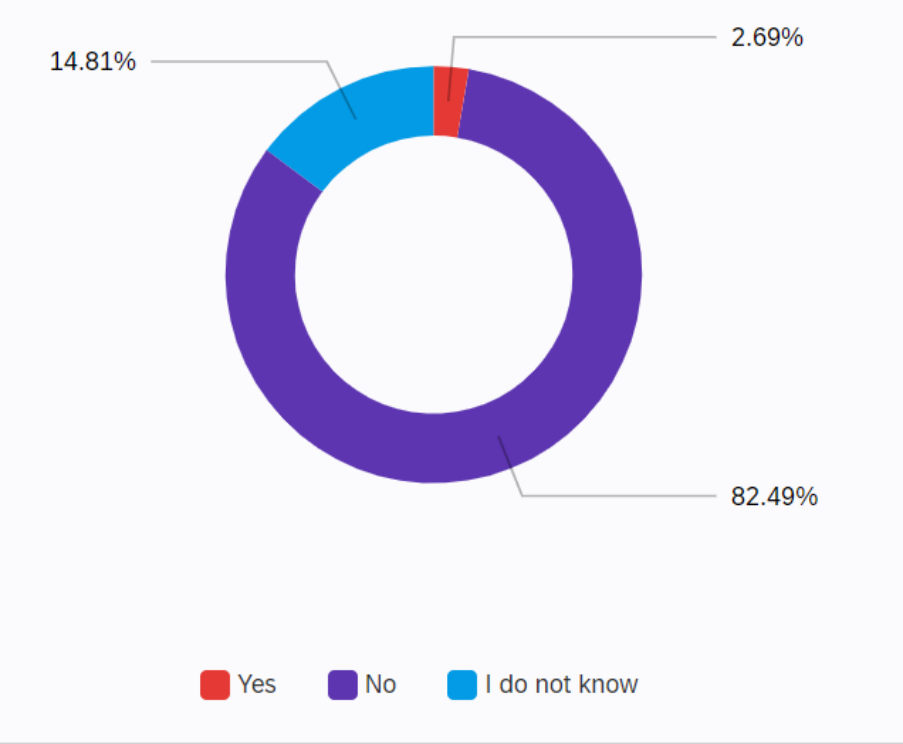


Figure 38

Arming Teachers/Administrators by School Type

Public	(237)	Yes	5 of 237	2.1%
Private	(51)	Yes	3 of 51	5.9%
Preschool	(9)	Yes	0 of 9	0.0%
Elementary (Grades K-5)	(82)	Yes	1 of 82	1.2%
Middle (Grades 6-8)	(50)	Yes	1 of 50	2.0%
High (Grades 9-12)	(60)	Yes	1 of 60	1.7%
Rural	(23)	Yes	0 of 23	0.0%
Urban	(39)	Yes	0 of 39	0.0%
Suburban	(61)	Yes	1 of 61	1.6%

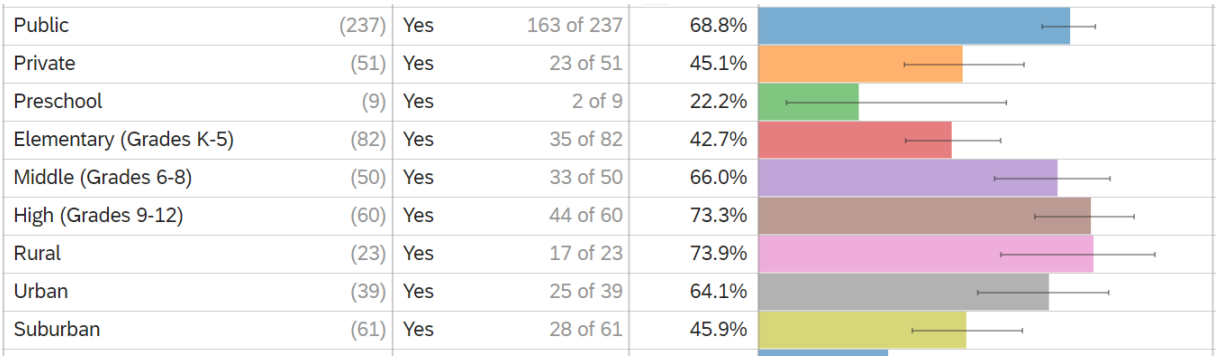
Table 5

On-Campus School Resource or Security Officer (N = 297)

	Frequency	Percent
Yes	194	65.32
No	94	31.65
I don't know	9	3.03
Total	297	100.0

Figure 39

On-Campus School Resource or Security Officer by School Type



Safety Teams and Planning

Participants answered questions about safety teams, collaborating in safety planning, and reunification plans for students to reunite with families after an active shooter event. Safety team committees consist of people who make the decisions regarding safety procedures and measures at a school. This team usually includes administrators, school resource officers, school counselors, law enforcement agencies, and can include teachers and parents. The majority of participants surveyed (60.94%) indicated that their school does have a safety committee team. Over 23% did not know if their school had a safety committee team and 15.49% said their school does not have a safety committee team. This data is represented in Figure 40. Comparing school types, the percentages of schools who have safety teams is similar across the different types, ranging from 49% to 65% in all types of schools except preschool, where the percentage of

schools who have safety team committees is 33.3%. This is shown in Figure 41. Many participants (67. 34%) responded their school collaborates with local law enforcement and/or emergency response agencies to develop and carry out their active shooter drills, and15.49% said their school did not collaborate with these agencies, whereas 17.17% did not know if their schools collaborated with these agencies or not. This data is displayed in Figure 42. The percentages are similar when comparing the different types of schools with public schools having a 10% increase over private schools when queried about collaborating with local law enforcement agencies. The percentage of urban schools who collaborate with local agencies when developing their safety plans was 10% lower than rural or suburban schools. These comparisons are shown in Figure 43. More than a third of the participants did not know if their school has a reunification plan to reunite students with their parents after an active shooter event. Forty-nine percent of schools said they did have a reunification plan. Figure 44 displays the responses about a reunification plan. Comparing school types, the percentages were similar with a notable difference for urban schools, who indicated 35.9% of their schools have a reunification plan. Figure 45 shows these comparisons.

Figure 40

School Safety Team Committee

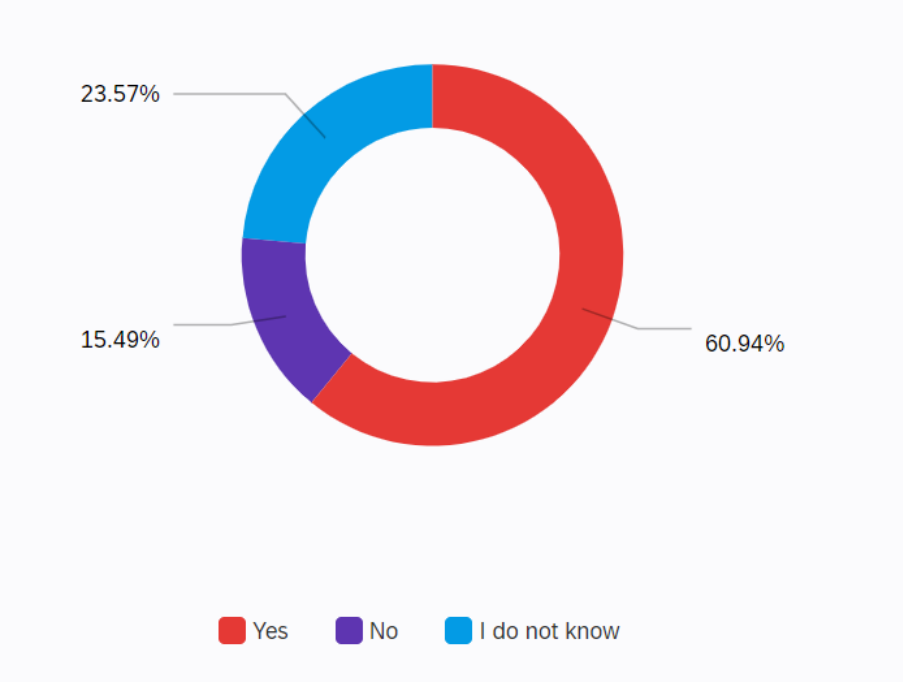


Figure 41

School Safety Team Committee by School Type

Public	(237)	Yes	145 of 237	61.2%	54.8% 67.2%
Private	(51)	Yes	30 of 51	58.8%	
Preschool	(9)	Yes	3 of 9	33.3%	
Elementary (Grades K-5)	(82)	Yes	41 of 82	50.0%	
Middle (Grades 6-8)	(50)	Yes	30 of 50	60.0%	
High (Grades 9-12)	(60)	Yes	36 of 60	60.0%	
Rural	(23)	Yes	15 of 23	65.2%	
Urban	(39)	Yes	23 of 39	59.0%	
Suburban	(61)	Yes	30 of 61	49.2%	

Figure 42

School Collaborating with Local Law Enforcement and/or Emergency Response Agencies to Develop and Carry Out Active Shooter Drills

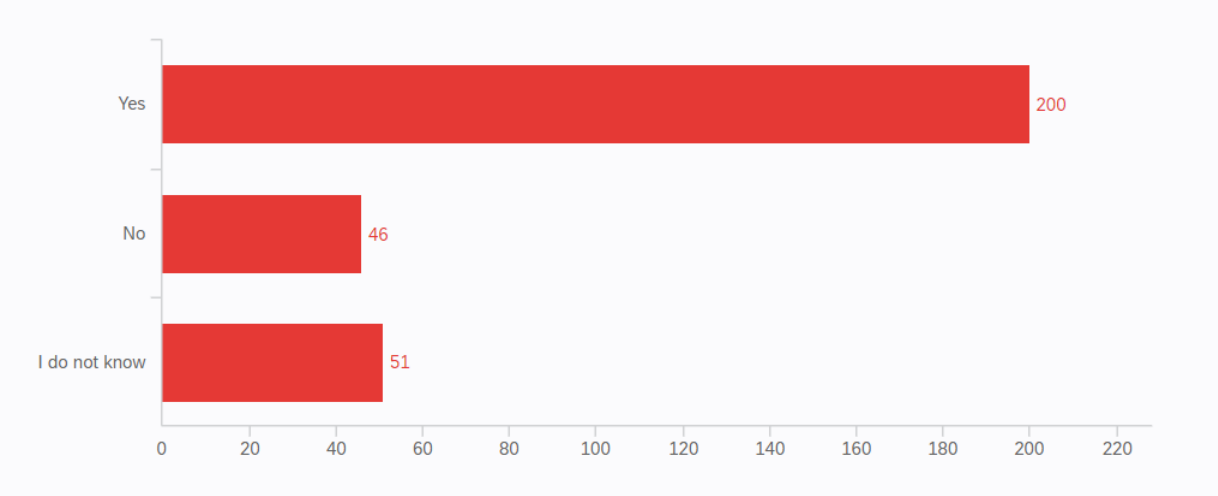


Figure 43

Schools Collaborating with Local Law Enforcement and/or Emergency Response Agencies to Develop and Carry Out Active Shooter Drills by School Type

Public	(237)	Yes	165 of 237	69.6%
Private	(51)	Yes	30 of 51	58.8%
Preschool	(9)	Yes	6 of 9	66.7%
Elementary (Grades K-5)	(82)	Yes	57 of 82	69.5%
Middle (Grades 6-8)	(50)	Yes	36 of 50	72.0%
High (Grades 9-12)	(60)	Yes	40 of 60	66.7%
Rural	(23)	Yes	16 of 23	69.6%
Urban	(39)	Yes	23 of 39	59.0%
Suburban	(61)	Yes	42 of 61	68.9%

Figure 44

Reunification Plan to Reunite Students with Parents after an Active Shooter Event (N = 296)

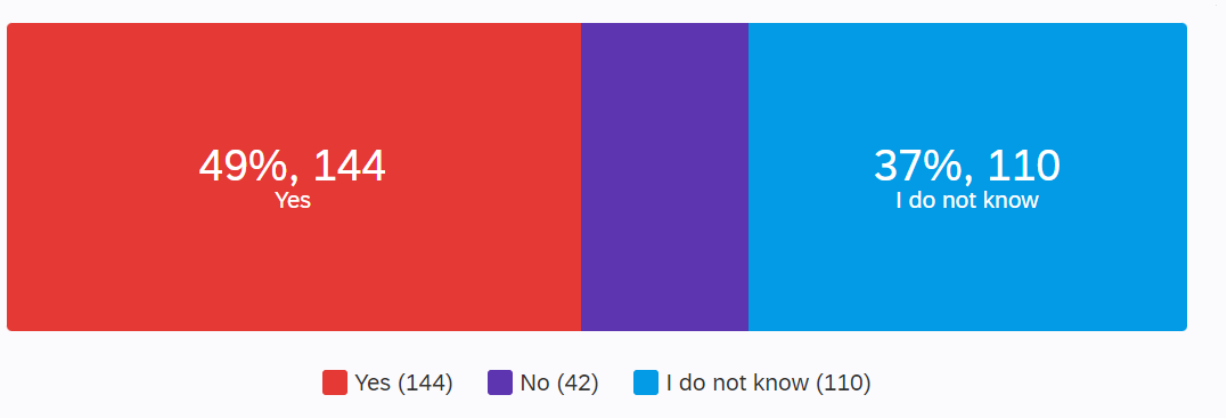


Figure 45

Reunification Plan to Reunite Students with Parents after an Active Shooter Event by School Type

Public	(237)	Yes	116 of 237	48.9%	
Private	(50)	Yes	25 of 50	50.0%	36.6% 63.4%
Preschool	(9)	Yes	4 of 9	44.4%	
Elementary (Grades K-5)	(82)	Yes	41 of 82	50.0%	
Middle (Grades 6-8)	(50)	Yes	23 of 50	46.0%	
High (Grades 9-12)	(60)	Yes	29 of 60	48.3%	
Rural	(23)	Yes	13 of 23	56.5%	
Urban	(39)	Yes	14 of 39	35.9%	
Suburban	(61)	Yes	30 of 61	49.2%	

What are the physical and psychological effects of active shooter drills on participants with comparisons by demographics across the United States?

Physical Effects

The participants were all adults who work in a K-12 public or private school. The participants worked as either a teacher, administrator, counselor or in a classified support position. Participants were asked if they experienced physical or psychological symptoms relating to active shooter drills being conducted in their schools. Participants were asked to check

all physical symptoms that they experienced before, during, or after an active shooter drill. The physical symptoms listed on the survey included racing heartbeat, anxious feelings, headache, or stomachache. When participants were asked to check all physical symptoms that apply to them and to check when they experienced these feelings (before, after, or during the drill), there were 648 responses to this question, indicating that participants can experience more than one symptom during more than one time period during the drill. More than half of the participants (158) reported having anxious feelings related to active shooter drills in their schools. A racing heartbeat was a physical response experienced by 79 participants. The most common time to experience physical symptoms was during the drill, with 131 participants choosing this response. Not all participants were affected with physical symptoms related to active shooter drills, as 127 participants stated they did not experience these physical symptoms. Figure 46 displays the responses chosen for physical symptoms experienced relating to active shooter drills. Figure 47 shows the responses indicating the time period that physical symptoms are experienced (before, during, or after active shooter drills).

Figure 46

Physical Symptoms Experienced Relating to Active Shooter Drills

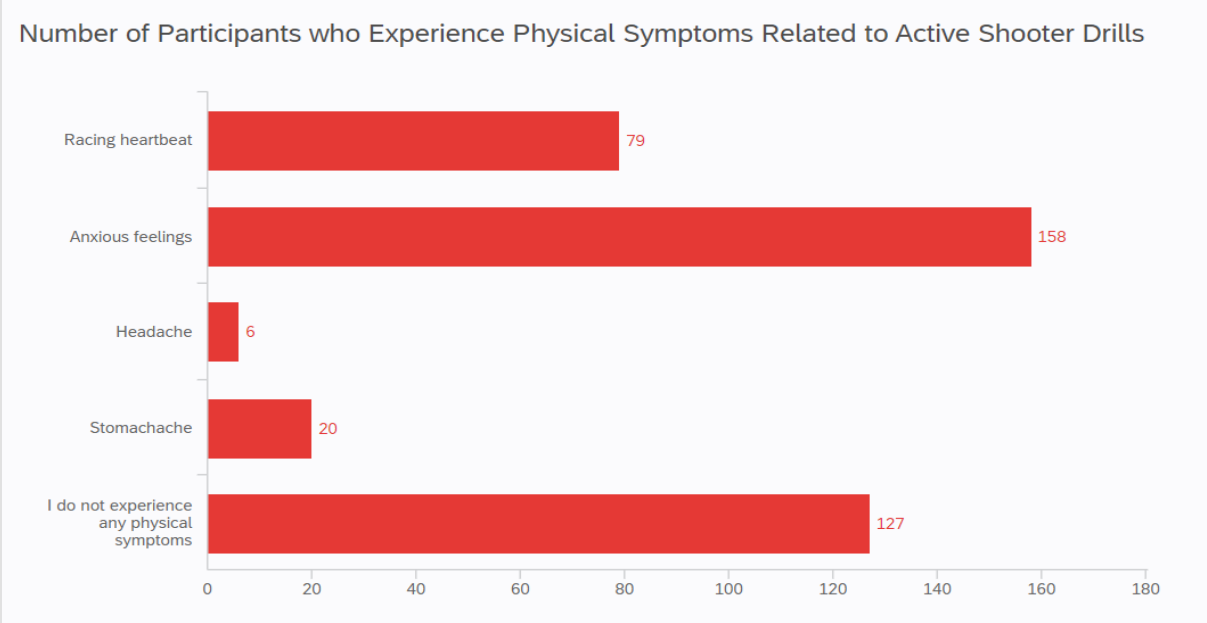
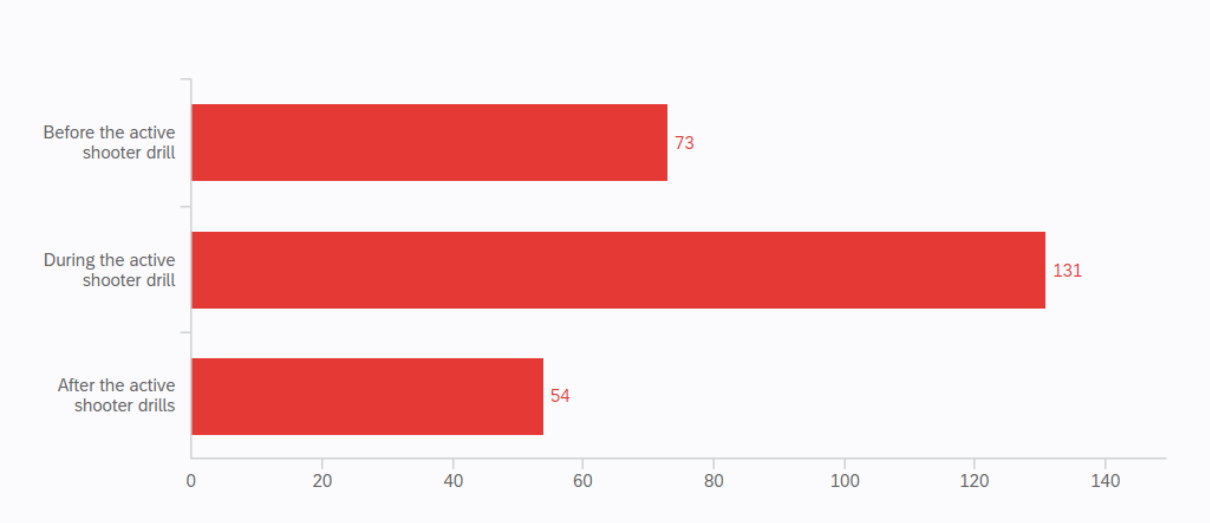


Figure 47

Time Period (Before, During, or After the Drill) when Physical Symptoms are Experienced



Psychological Effects

In addition to physical symptoms, active shooter drills can also affect school personnel emotionally. Participants were asked if they experience anger or frustration related to the drills and if they do, what time (before, after, or during) do they experience these symptoms. There

were 123 participants who indicated they do feel frustration related to the drills, while 76 participants said they feel anger. There were 138 participants who said they do not experience frustration or anger related to the active shooter drills. Many of the participants (108) said they experienced feelings of anger and/or frustration during the drills, while almost the same amount (109) say they experience these feelings after the drills. Seventy-five participants said they experienced these feelings before the active shooter drills. Figures 48 and 49 display the responses to the questions concerning psychological symptoms. Over 47% (146 of 297) participants said that their school does not offer any training on how to recognize and respond to trauma relating to active shooter drills. This can relate to trauma in students or school personnel. Thirty percent (92 of 297) participants said their school does provide this type of training, and over 20% (68 of 297) participants did not know whether their school offers this training or not. Figure 50 displays this data.

Figure 48

Psychological Symptoms Experienced Relating to Active Shooter Drills

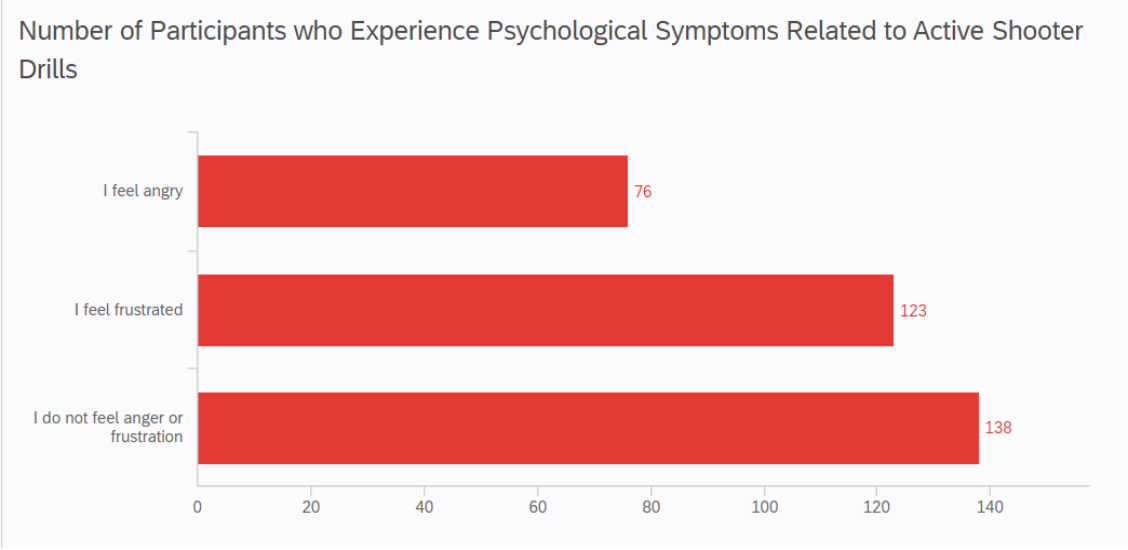


Figure 49

Time Period (Before, During, or After the Drill) When Psychological Symptoms are Experienced

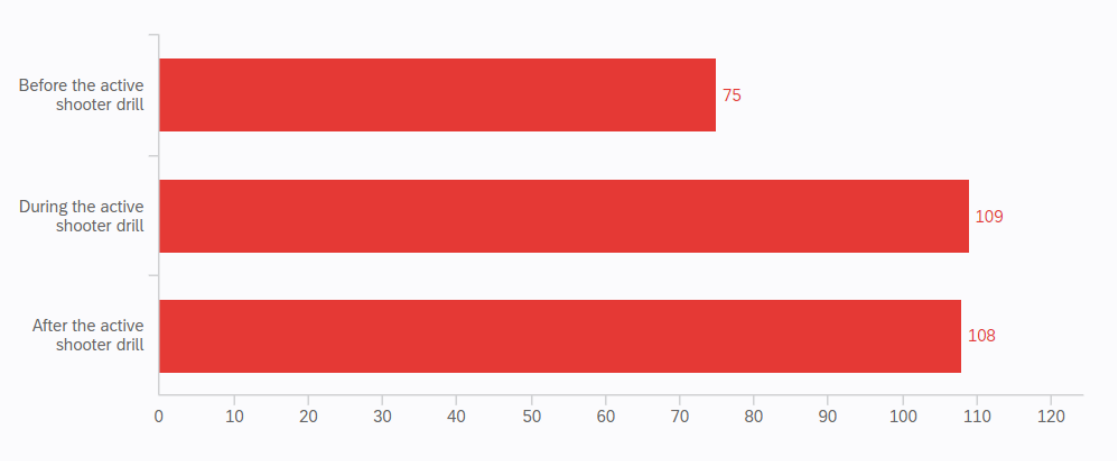
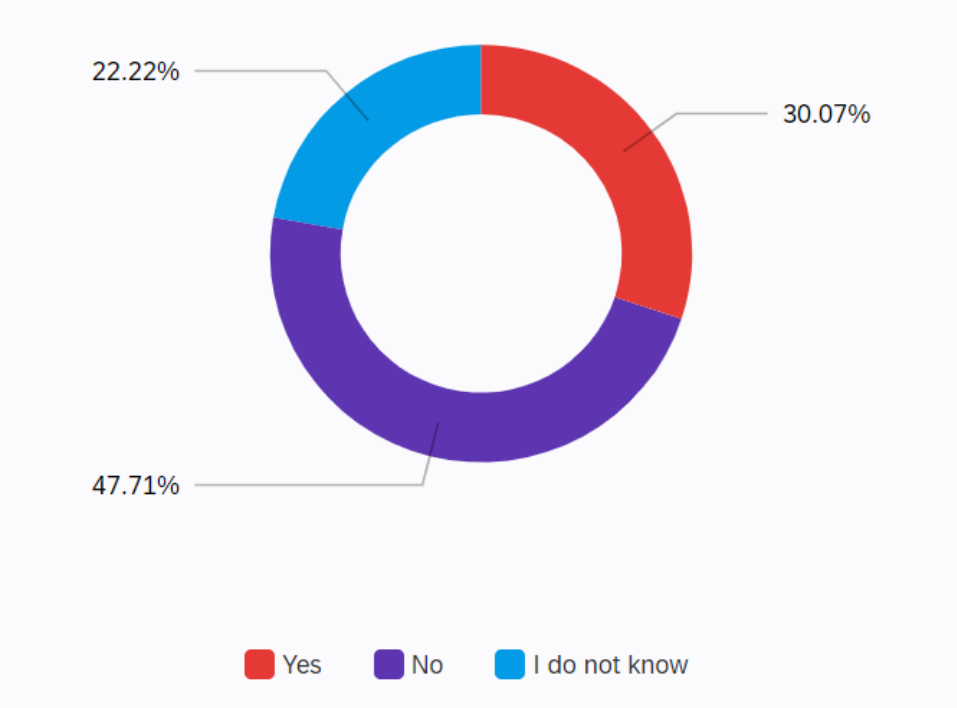


Figure 50

Training Offered on How to Recognize and Respond to Trauma Relating to Active Shooter Drills

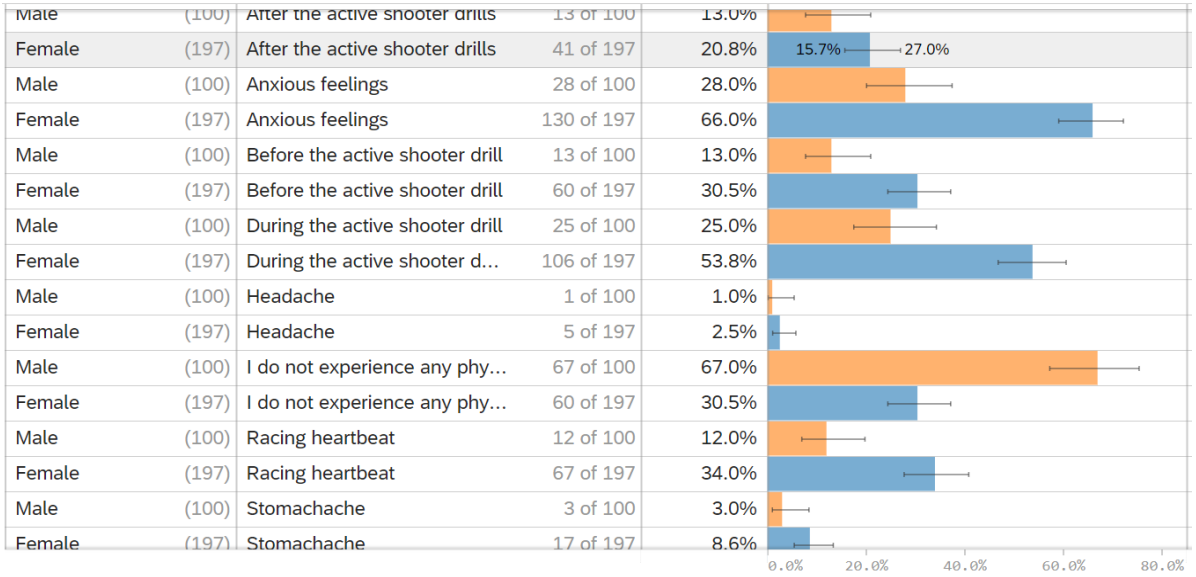


Physical and Psychological Effects Comparing Participants' Demographics

The researcher was interested in understanding the physical and psychological effects of active shooter drills on participants when comparing demographics. When looking at gender as a variable, the results of the survey indicated that more women than men experience headaches, racing heartbeats, stomach aches, and anxious feelings. As shown in Figure 51, 66% of women experienced anxious feelings related to active shooter drills compared to 28% of men. More women than men experienced racing heartbeats related to active shooter drills, with 34% of women saying they experience racing heartbeats compared to 12% of men. More women also experienced stomachaches relating to active shooter drills than men did, with 8.6% of women saying they experienced stomachaches compared to 3% of men. When asked about overall physical symptoms experienced in relation to active shooter drills, 67% of men said they did not experience any physical symptoms compared to 30.5% of women who said they do not experience physical symptoms related to active shooter drills. A similar comparison can be made relating gender to experiencing psychological symptoms related to an active shooter drill. As displayed in Figure 52, more women than men felt anger and frustration related to active shooter drills. When asked about feeling anger related to active shooter drills 31.6% of women said they felt anger, while 14.1% of men said they felt anger. When comparing feelings of frustration, the numbers were closer with 45.9% of women and 33.3% of men feeling frustration. Comparing overall feelings of anger and frustration, 41.3% of women said they do not feel anger or frustration, while 57.6% of men said they do not feel anger or frustration related to active shooter drills.

Figure 51

Male/Female Physical Symptoms Related to Participating in Active Shooter Drills

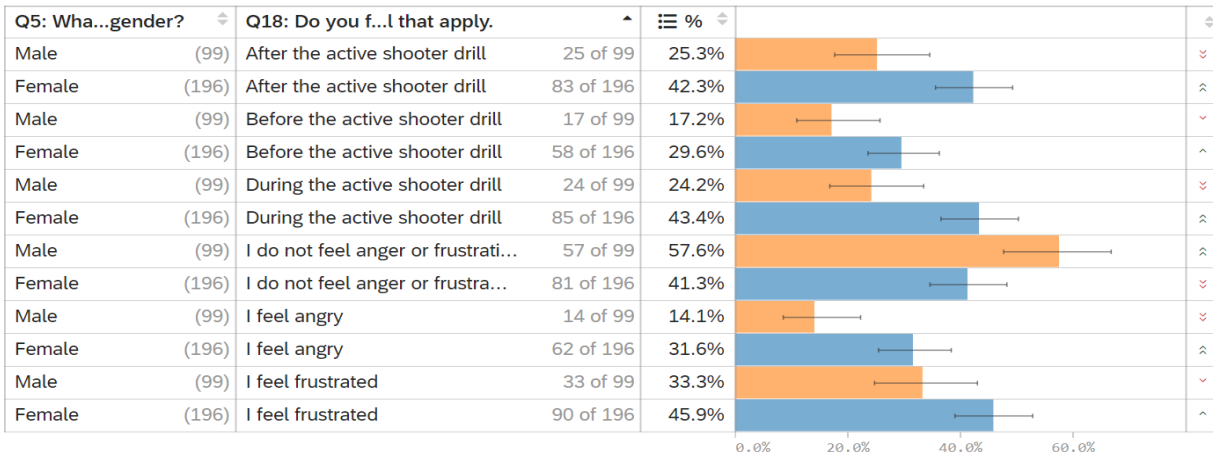


Male	(100)	After the active shooter drills	13 of 100	13.0%	
Female	(197)	After the active shooter drills	41 of 197	20.8%	15.7% – 27.0%
Male	(100)	Anxious feelings	28 of 100	28.0%	
Female	(197)	Anxious feelings	130 of 197	66.0%	
Male	(100)	Before the active shooter drill	13 of 100	13.0%	
Female	(197)	Before the active shooter drill	60 of 197	30.5%	
Male	(100)	During the active shooter drill	25 of 100	25.0%	
Female	(197)	During the active shooter d...	106 of 197	53.8%	
Male	(100)	Headache	1 of 100	1.0%	
Female	(197)	Headache	5 of 197	2.5%	
Male	(100)	I do not experience any phy...	67 of 100	67.0%	
Female	(197)	I do not experience any phy...	60 of 197	30.5%	
Male	(100)	Racing heartbeat	12 of 100	12.0%	
Female	(197)	Racing heartbeat	67 of 197	34.0%	
Male	(100)	Stomachache	3 of 100	3.0%	
Female	(197)	Stomachache	17 of 197	8.6%	

0.0% 20.0% 40.0% 60.0% 80.0%

Figure 52

Male/Female Psychological Symptoms Related to Participating in Active Shooter Drills



Q5: Wha...gender?		Q18: Do you f...l that apply.		%
Male	(99)	After the active shooter drill	25 of 99	25.3%
Female	(196)	After the active shooter drill	83 of 196	42.3%
Male	(99)	Before the active shooter drill	17 of 99	17.2%
Female	(196)	Before the active shooter drill	58 of 196	29.6%
Male	(99)	During the active shooter drill	24 of 99	24.2%
Female	(196)	During the active shooter drill	85 of 196	43.4%
Male	(99)	I do not feel anger or frustrati...	57 of 99	57.6%
Female	(196)	I do not feel anger or frustra...	81 of 196	41.3%
Male	(99)	I feel angry	14 of 99	14.1%
Female	(196)	I feel angry	62 of 196	31.6%
Male	(99)	I feel frustrated	33 of 99	33.3%
Female	(196)	I feel frustrated	90 of 196	45.9%

0.0% 20.0% 40.0% 60.0%

Physical and Psychological Symptoms Compared with Types of Active Shooter Drills

The researcher was interested in comparing the physical and psychological symptoms participants experienced and when they experienced these symptoms with the types of active shooter drills conducted at their schools. Figure 53 shows the data for the participants who chose lockdown drills for the type of active shooter drill that their school conducts. The most common

physical symptom was anxious feelings, with 54.9% of participants who chose lockdown drill indicating that they experienced anxious feelings related to the drill. Racing heartbeat was experienced by 26.5%, stomachaches by 7.6%, and headaches by 2.3% of participants who chose lockdown drills. Approximately 40% indicated that they do not experience physical symptoms related to participating in lockdown drills. In regard to the time periods of before, during, or after the drill, 45.1% of participants who chose lockdown drills chose during the drill as the time they experienced physical symptoms. As displayed in Figure 54, for participants who chose multi-option response drills as the type of drill their school conducts, 57.8% indicated they experienced anxious feelings related to participating in the drill, 33.3% experienced racing heartbeats, 8.9% experienced stomachaches, and 6.7% experienced headaches. The time most participants experienced physical symptoms was during the drill with 45.1% indicating that time. Forty percent of participants who chose multi-option response drills as the drill their school conducted indicated that they do not experience physical symptoms relating to the drills. Anxious feelings are experienced by 52.6% of participants who chose active shooter simulations as the type of drill their school conducts, followed by 36.8% experiencing a racing heartbeat, 13.2% experiencing stomachaches, and 10.5% experiencing headaches relating to participating in the drills. Of the participants who chose active shooter simulations as the type of drills their school conducts, 44.7% indicated they do not experience physical symptoms relating to the drills. This data is displayed in Figure 55, Comparing all three types of drills, racing heartbeats, headaches, and stomachaches are experienced at a higher rate in active shooter simulations, and anxious feelings are experienced at a higher percentage in multi-response drills. In all three types of drills, physical symptoms were most experienced during the drills, followed by before the drills.

When comparing psychological symptoms of anger and frustration, of those participants who chose lockdown drills, 42.2% indicated they felt frustrated and 25.9% indicated they felt anger related to participating in the drills. The most common time to experience these symptomswas both during (36.9%) and after (36.1%). Over 47% indicated they do not feel anger or frustration during the drills. Figure 56 displays this data. Of the participants who chose multi-option response drills, 50% indicated they felt frustrated, and 25.9% felt anger related to the drills. The most common time for these feelings was after the drill (52.3%). Twenty five percent reported they did not feel anger or frustration relating to the multi-response drills. This is shown in Figure 57. Of the participants who chose active shooter simulation drills, 44.7% felt frustrated and 34.2% felt anger relating to participating in the drills. The most common time for these feelings was during the drill (47.4%) followed by after the drill (44.7%). Of the active shooter simulation participants, 44.7% said they do not feel anger or frustration related to the drills. This information is displayed in Figure 58. When comparing all three types of drills, the highest percentage who felt frustrated was those who participated in multi-response drills. Active shooter simulations and multi-response drills both had the highest rate of participants who indicated they feel anger (34.2% and 34.1%, respectively).

Figure 53

Physical Symptoms Related to Participating in Lockdown Drills

Lockdown drills ...	(264)	Racing heartbeat	70 of 264	26.5%	
Lockdown drills ...	(264)	After the active shooter drills	48 of 264	18.2%	
Lockdown drills ...	(264)	Anxious feelings	145 of 264	54.9%	
Lockdown drills ...	(264)	Before the active shooter drill	68 of 264	25.8%	
Lockdown drills ...	(264)	During the active shooter d...	119 of 264	45.1%	
Lockdown drills ...	(264)	Headache	6 of 264	2.3%	
Lockdown drills ...	(264)	I do not experience any ph...	108 of 264	40.9%	
Lockdown drills ...	(264)	Stomachache	20 of 264	7.6%	

Figure 54

Physical Symptoms Related to Participating in Multi-Response Drills

Multi-response ac...	(45)	Racing heartbeat	15 of 45	33.3%	
Multi-response ac...	(45)	After the active shooter drills	12 of 45	26.7%	
Multi-response ac...	(45)	Anxious feelings	26 of 45	57.8%	
Multi-response ac...	(45)	Before the active shooter drill	13 of 45	28.9%	
Multi-response ac...	(45)	During the active shooter drill	20 of 45	44.4%	
Multi-response ac...	(45)	Headache	3 of 45	6.7%	
Multi-response ac...	(45)	I do not experience any physi...	18 of 45	40.0%	
Multi-response ac...	(45)	Stomachache	4 of 45	8.9%	

Figure 55

Physical Symptoms Related to Participating in Active Shooter Simulations

Active shooter si...	(38)	Racing heartbeat	14 of 38	36.8%	
Active shooter si...	(38)	After the active shooter drills	7 of 38	18.4%	
Active shooter si...	(38)	Anxious feelings	20 of 38	52.6%	
Active shooter si...	(38)	Before the active shooter drill	9 of 38	23.7%	
Active shooter si...	(38)	During the active shooter drill	21 of 38	55.3%	
Active shooter si...	(38)	Headache	4 of 38	10.5%	
Active shooter si...	(38)	I do not experience any physi...	17 of 38	44.7%	
Active shooter si...	(38)	Stomachache	5 of 38	13.2%	

Figure 56

Psychological Symptoms Related to Participating in Lockdown Drills

Lockdown drills ...	(263)	I feel angry	68 of 263	25.9%	
Lockdown drills ...	(263)	After the active shooter drill	95 of 263	36.1%	
Lockdown drills ...	(263)	Before the active shooter drill	67 of 263	25.5%	
Lockdown drills ...	(263)	During the active shooter drill	97 of 263	36.9%	
Lockdown drills ...	(263)	I do not feel anger or frustr...	125 of 263	47.5%	
Lockdown drills ...	(263)	I feel frustrated	111 of 263	42.2%	

Figure 57

Psychological Symptoms Related to Participating in Multi-Response Drills

Multi-response ac...	(44)	I feel angry	15 of 44	34.1%	
Multi-response ac...	(44)	After the active shooter drill	23 of 44	52.3%	
Multi-response ac...	(44)	Before the active shooter drill	13 of 44	29.5%	
Multi-response ac...	(44)	During the active shooter drill	20 of 44	45.5%	
Multi-response ac...	(44)	I do not feel anger or frustrati...	11 of 44	25.0%	
Multi-response ac...	(44)	I feel frustrated	22 of 44	50.0%	

Figure 58

Psychological Symptoms Related to Participating in Active Shooter Simulation Drills

Active shooter si...	(38)	I feel angry	13 of 38	34.2%	
Active shooter si...	(38)	After the active shooter drill	17 of 38	44.7%	
Active shooter si...	(38)	Before the active shooter drill	11 of 38	28.9%	
Active shooter si...	(38)	During the active shooter drill	18 of 38	47.4%	
Active shooter si...	(38)	I do not feel anger or frustrati...	17 of 38	44.7%	
Active shooter si...	(38)	I feel frustrated	17 of 38	44.7%	

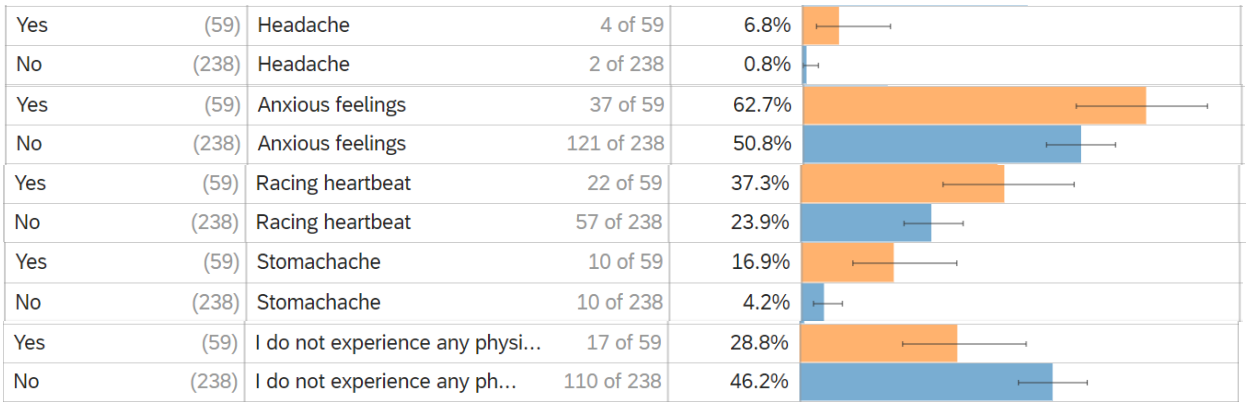
Physical and Psychological Symptoms Compared with Participant's Past Trauma

The researcher sought to understand the physical and psychological symptoms relating to active shooter drills while comparing a participant's past experiences of gun-related violence. Participants were asked if they had ever personally experienced a traumatic event involving their family, friends, or acquaintances related to gun violence, such as suicide, homicide, accidental or intentional shooting or a mass shooting. The responses to this question were compared to the responses of physical symptoms experienced related to participating in active shooter drills. Figure 59 displays this comparison. The participants who answered yes to experiencing past gun

related violence had higher percentages of physical symptoms including racing heartbeat, anxious feelings, headaches, and stomachaches as compared to the participants who have not experienced traumatic events involving gun violence. Similarly, responses were compared for those who experienced psychological symptoms of anger or frustration related to active shooter drills with those who had personally experienced a past traumatic event involving gun-related violence. Thirty-nine percent of participants who said they have experienced a past traumatic event involving gun violence indicated they experienced feelings of anger related to active shooter drills, as compared to 22.5% of participants who said they had not experienced a past traumatic event involving gun violence and did experience feelings of anger related to active shooter drills. Over 50% of participants who experienced a gun related traumatic event in their past indicated that they felt frustration related to active shooter drills, while 39% of those who had not experienced a past traumatic gun-related event reported they feel frustration related to the drills. This data is represented in Figure 60.

Figure 59

Physical Symptoms Related to Active Shooter Drills Compared with Participant's Past Trauma Experiences

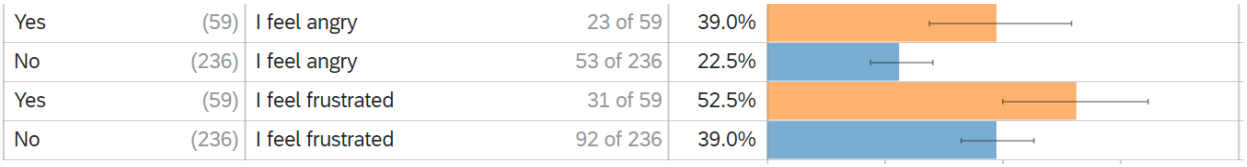


Note. The first column represents the participant's answer to the question, "Have you personally experienced a traumatic event involving your family, friends, or acquaintances related to gun violence, such as suicide, homicide, accidental or intentional shooting or mass shooting?"

Figure 60

Psychological Symptoms Related to Active Shooter Drills Compared with Participant's Past Trauma Experiences

The first column represents the participant's answer to the question, "Have you personally experienced a traumatic event involving your family, friends, or acquaintances related to gun violence, such as suicide, homicide, accidental or intentional shooting or mass shooting?"



Post-Hoc Analyses of Physical and Psychological Symptoms Compared with Participant's Past Trauma

Researcher conducated a post-hoc analysis of physical symptoms relating to active shooter drills when compared with a participant's past experiences of traumatic events involving participant's family, friends, or acquaintances related to gun violence, such as suicide, homicide, accidental or intentional shooting or mass shooting. Fisher's exact test, established in 1925, can be used when there are two categorical variables. The data is arranged in a 2x2 table, also called a contingency table. The goal of Fisher's exact test is to test whether the two variables are associated with each other. This is done by checking the null hypothesis, which would be that the variables are not associated. The p-value is the probability that the null hypothesis is true. If the p-value is less than 0.05, the null hypothesis should be rejected, meaning the variables are associated with each other (Nowicki, 2017). The results show a statistically significant relationship between experiencing a past traumatic event involving gun violence and experiencing headaches related to participating in active shooter drills. The p-value is 0.0155, which is < 0.05, showing a statistical significance. The effect size is 0.168 with a sample size of

297. Again, using Fisher's exact test, the analysis shows a statistically significant relationship between experiencing a past traumatic event involving gun violence and experiencing stomach aches related to participating in active shooter drills. The p-value is 0.00168 with an effect size of 0.203 and a participant size of 297. There is also a statistically significant relationship between experiencing a past traumatic event involving gun violence and experiencing a racing heartbeat related to participating in active shooter drills. Fisher's exact test shows a p-value of 0.0479, an effect size of 0.120 with a participant size of 297. Similarly, there is a statistically significant relationship between experiencing past traumatic gun violence and experiencing feelings of anger related to participating in an active shooter drill. Fisher's exact test shows a p-value of 0.0125, an effect size of 0.151 with a sample size of 295. These statistical analyses are shown in Figure 61.

Figure 61

Fisher's Exact Tests Showing Relationship between Past Traumatic Gun Violence and Experiencing Physical and Psychological Symptoms Related to Participating in Active Shooter Drills

Headache

P-Value	**0.0155**
Effect Size (Cramér's V)	0.168
Sample Size	297

Stomachache

P-Value	**0.00168**
Effect Size (Cramér's V)	0.203
Sample Size	297

Racing Heartbeat

P-Value	**0.0479**
Effect Size (Cramér's V)	0.120
Sample Size	297

Anger

P-Value	**0.0125**
Effect Size (Cramér's V)	0.151
Sample Size	295

Active Shooter Drills Properly Preparing Teachers, Staff and Students

Participants rated how they felt the active shooter drills conducted at their schools properly prepared teachers, staff, and students for an active shooter event. They used a scale of 0 to 5, with 0 being not at all prepared and 5 indicating they felt they were very prepared. The data is normally distributed with the mode being 3. Nineteen participants answered, "not at all prepared" and 10 participants answered, "very prepared." The data is represented in a bar graph in Figure 62. Participants were asked if the safety measures in place in their schools make them feel more prepared for an active shooter event. Almost half (49.83%) of the participants said the safety measures in place in their schools do make them feel more prepared for an active shooter

event. A total of 32.66% said the safety measures did not help them to feel more prepared for an event and 17.51% did not know if they felt more prepared because of the safety measures in place in their schools. This data is displayed in Figure 63.

Figure 62

Do Participants Feel Active Shooter Drills Properly Prepare Teachers, Staff, and Students for an Active Shooter Event?

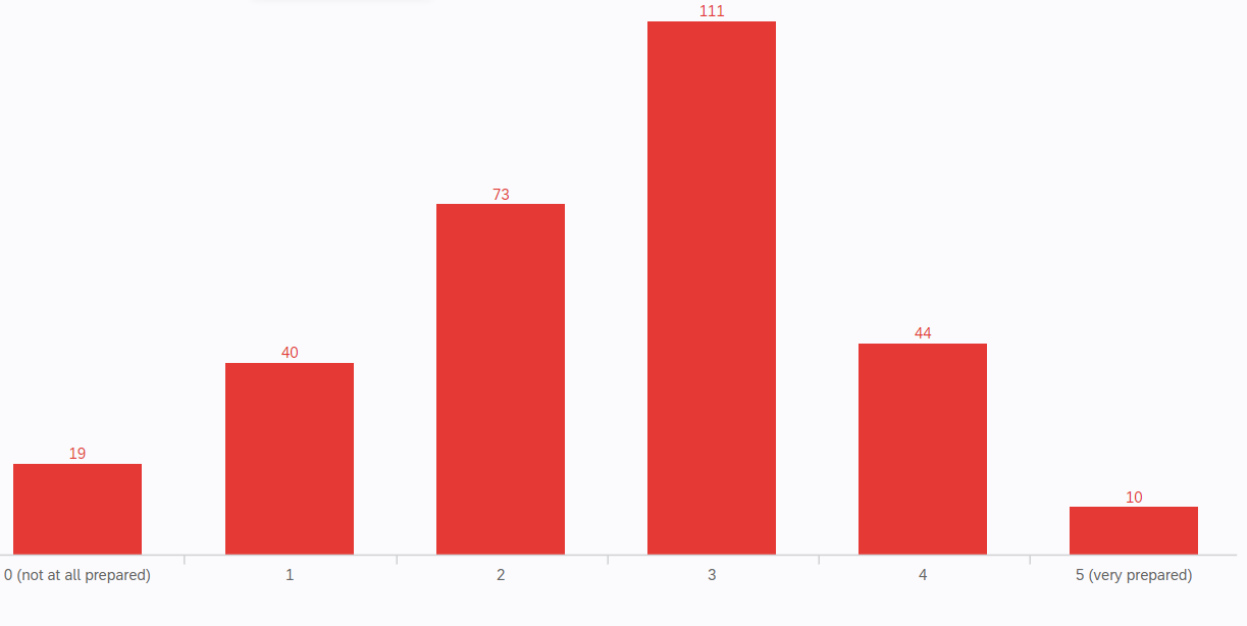
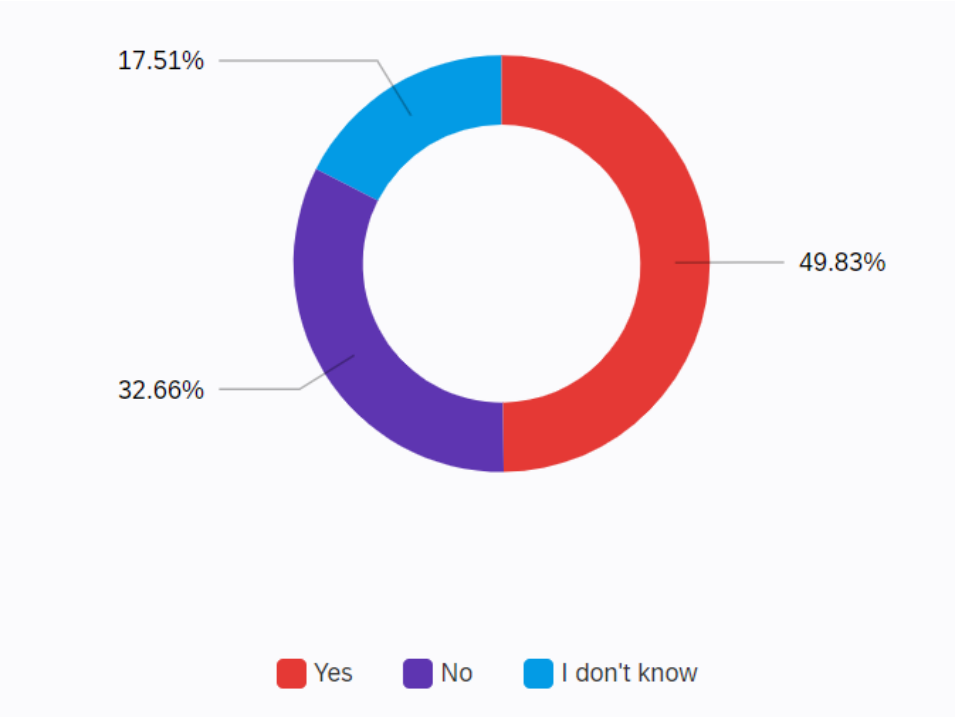


Figure 63

Do the Safety Procedures put in Place in the Participants' School Make Them Feel Prepared for an Active Shooter Event



Summary

This chapter explained the results of the researcher-designed survey taken by 297 participants. The participants were over the age of 18 and employed by a K-12 public or private school in one of the following positions: teacher, administrator, counselor, or classified support staff. There were more females than males who took the survey. The majority of participants were White. The participants were evenly dispersed in the different regions of the United States. Most of the participants worked in a public school. The socioeconomic statuses of the schools varied.

The survey results provided answers to the research questions. The first research question asked which type of active shooter drills were conducted at various schools. The most common

drill conducted is the lockdown drill, during which students hide quietly in their classrooms. This drill is conducted by over 70% of the participants' schools. Comparisons were shown between the types of schools and their locations in the United States and what types of active shooter drills they conduct. The second research question asked the frequency of the drills. Over 40% of the participants' schools conducted active shooter drills quarterly. The researcher queried other safety measures used at the various K-12 schools and the most common safety measure used is security cameras, which were used by 267 of the 297 schools surveyed. Many participants surveyed (65.32%) indicated their schools had an on-campus school resource or security officer. Most schools (253 out of 297) did not have metal detectors in their schools. Researcher compared safety procedures and the different types of schools.

The researcher sought to determine how these active shooter drills affected the school employees who participated in them. Participants were asked if they experienced either physical or psychological symptoms before, during, or after the active shooter drills. The most common physical symptom was anxious feelings and the most common time to experience physical symptoms was during the active shooter drills. The participants were asked if they experienced anger or frustration related to the active shooter drills. More participants experienced frustration than anger. A little less than half of the participants indicated they do not experience anger or frustration related to participating in the active shooter drills. Comparisons were made between male and female participants, with female participants experiencing more physical and psychological symptoms than males. Comparisons were also made between the types of drills conducted and the physical and psychological symptoms experienced related to participating in the drills. Participants were asked if they had experienced a traumatic event involving gun violence in their past. More people who answered yes to having experienced such an event

reported that they experienced physical and psychological symptoms relating to active shooter drills. A statistically significant relationship was shown between participants experiencing a past traumatic event involving gun violence and participants experiencing headaches, stomachaches, racing heartbeats, and anger related to participating in active shooter drills. Lastly, participants were asked whether they felt the active shooter drills conducted at their schools prepared them for an active shooter event. They were asked to rate their preparedness on a scale of 0-5. Interestingly, the answers were normally distributed with 3 as the most common answer. The following chapter will discuss the implications of the survey results, limitations of the research, and provide recommendations for further research.

CHAPTER FIVE: CONCLUSIONS

Overview

This chapter presents a discussion of the findings of this research study. Comparisons will be made between the results of this study and the findings of earlier studies. Implications of this study will be provided, showing how its results can impact best practices in school safety. The limitations of the study will be addressed followed by recommendations for further studies.

Discussion

The implementation of active shooter drills in schools across the United States has increased in response to high profile school shootings (Howard et al., 2022). There is variability among the different types of drills conducted (Vail, 2022). There is not an evidence-based national standard for the types and frequency of the drills that should be conducted (Schildkraut et al., 2020). An understanding of the types of active shooter drills, their frequency, and their effects is important if a national standard is to be developed. The purpose of this quantitative descriptive statistics research study was to understand the types of drills being conducted, the frequency of the drills, and other security measures used in public and private elementary, middle, and high schools, along with the physical and psychological effects of these drills on administrators, staff, and faculty.

Researcher used a self-created 29 question survey which was was distributed through Prolific. Participants answered questions about the type and frequency of active shooter drills conducted at their schools, other safety measures taken at their schools, as well as physical and psychological symptoms they experienced relating to participating in active shooter drills. The study sought to answer following research questions:

RQ1: What type of active shooter drills are conducted in various public and private elementary, middle, and high schools across the United States?

RQ2: What is the frequency of active shooter drills conducted in various public and private elementary, middle, and high schools across the United States?

RQ3: What security measures are being taken at various public and private elementary, middle, and high schools across the United States?

RQ4: What are the physical and psychological effects of active shooter drills on participants with comparisons by demographics across the United States?

What type of active shooter drills are conducted in various public and private elementary, middle, and high schools across the United States?

The first research question concerns the different types of active shooter drills. Simonetti (2020) stated that according to the National Center for Education Statistics, 95% of public schools have a plan in place for active shooter drills. Almost 95% of the schools surveyed conduct active shooter drills, compared to a study by Gerlinger & Schleifer (2021) showing that only 58% of a sample of 5,209 schools participated in active shooter drills during the previous school year. Their survey data was from 2004 to 2010. The 58% is a mean value, with 48% conducted in 2004 and 64% conducted in 2010. Consistent with this research study by Gerlinger & Schleifer (2021) predicting that suburban schools implement active shooter drills more than urban schools, this current study found that almost 97% of suburban schools conduct active shooter drills compared to almost 95% of urban schools. A notable difference between public and private schools in this survey is that 3.8% of participants who work in public schools indicated that their schools do not conduct any type of active shooter drills compared with 15.7% of private schools.

Active shooter drills can include lockdown drills, where students hide quietly in their classrooms; multi-option response drills, where students are given options, such as hiding, fighting back, or running; and active shooter simulations that include role playing of active shooting events (Howard et al., 2022). The results of this study revealed that lockdown drills are conducted by 71.54% of the schools surveyed, multi-response drills by 12.2%, and active shooter simulations by 10.3% The current study surveyed both public and private schools. In both types of schools, the largest percentage of schools conduct lockdown drills, followed by multi-option response drills, and then active shooter simulations. Simonetti (2020) stated that children in preschool participate in lockdown drills. The results of this survey indicated that 66.7% of participants who work in preschools participate in lockdown drills.

Jonson et al. (2020) conducted a research study comparing lockdown drills to multi-option response drills. Multi-option response drills, such as A.L.I.C.E. and Run, Hide, Fight, Avoid, Deny, Defend, provide participants with options, such as hiding, fighting back, or running. The Jonson et al. (2020) study suggested that multi-option response drills resulted in a shorter time for resolution. This current study showed that multi-option response drills are conducted in 12.2% of schools.

Active shooter simulations involve role-playing of active shooter situations. These drills can involve law enforcement officers and may include people pretending to be active shooters. There are recommendations by the National Association of School Psychologists, the National Association of School Resource Officers, and the American Academy of Pediatrics that children should not be involved in routine high-intensity drills, such as active shooter simulations (Donovan, 2023). This current study shows that 10.3% of schools surveyed participate in active shooter simulations.

School active shooter drills should be planned with the student's maturity level and special needs considered (Brown, 2019). Schonfield et al. (2020) explained that students with intellectual challenges are especially vulnerable, and their needs should be considered when determining best practices for active shooter drills. Participants in this study were asked if their schools differentiate the drills for younger or neurodiverse students. Over 60% of participants stated their school does not differentiate their active shooter drills for younger or neurodiverse students.

What is the frequency of active shooter drills conducted in various public and private elementary, middle, and high schools across the United States?

The second research question asks the frequency of active shooter drills. The survey options are never, weekly, quarterly, semi-annually, annually or "I don't know." This current study shows that the most common frequency of the drills conducted is quarterly (40.4%), followed by semi-annually (26.95%) and then annually (21.55%). When comparing school types, the most notable difference is found in rural schools, which conduct active shooter drills semi-annually at a rate of 43.5% compared to quarterly at 17.4%. After the 2018 school shooting in Parkland, Florida, the Marjory Stoneman Douglas High School Public Safety Act, also known as Florida Senate Bill 7026, mandated monthly active shooter drills for schools in Florida (Howard et al., 2022). This current study showed that quarterly is the most common frequency in the South and Northeast. Conducting drills semi-annually is the most common in the Midwest, followed by annually in the West.

This current study investigated advance warning of the active shooter drills. A study by Howard et al. (2022) examined whether schools followed the guidelines given by the National Association of School Psychologist and the National Association of School Resource Officers to

give advance warning before conducting an active shooter drill. The study showed that 52.4% of school informed teachers in advance of the drills. In this current study, 78.41% of participants reported they are given advance notice of the active shooter drills.

This study also examined how drills are announced. Hirschauer (2019) stated that unannounced drills can cause harm to students and teachers if they perceive the drills to be real. Burton (2020) suggested that communication by principals before, during, and after drills can decrease levels of fear. Over 50% of participants in the current study indicated that active shooter drills conducted in their schools are announced over the intercom, followed by 27.15% stating they are informed by text, text, email, phone call, or another telecommunication with 19.72% stating that their school used a system with light and/or sound.

Participants in this study were asked if their school gives them an option of opting out of active shooter drills. The National Association of School Resource Officers and the National Association of School Psychologist lists as a best practice allowing staff and students to opt out of an active shooter drill if they feel it would be traumatizing to them (Howard et al., 2022). The American School Counseling Association recommends that students be given the option of opting out of active shooter drills but does not give such a recommendation for teachers or staff (Eckhoff & Goodman-Scott, 2021). In a study conducted by Howard et al. (2020), the results showed that 62% of schools do not provide an option for staff and students to opt out of the drills. In this current study, over 82% of participants responded their school does not give them an option to opt out of active shooter drills.

What security measures are being taken at various public and private elementary, middle, and high schools across the United States?

An examination of key causes leading up to the Parkland, Florida school shooting in 2018 included little physical security measures in the school. Since then, the Federal Commission on School Safety developed the Students, Teachers, and Officers Preventing School Violence Act (STOP). This Act emphasizes that school authorities find safety measures that work in their schools (Howard et al., 2022). This current study asked participants about security measures that are implemented in their schools including metal detectors, arming teachers, a policy of keeping classroom doors locked, security cameras, school resource officers, school safety teams, reunification plans, and collaboration with local law enforcement agencies.

A research study conducted by Jones (2019) revealed that 9% of high schools in the United States in 2016 used metal detectors. Of the high schools in the United States surveyed in this current study, 10% used metal detectors compared to 11% of elementary schools, and 12% of middle schools. Perhaps the small percentages of schools who use metal detectors is due to the barriers described by Jones (2019), which include the cost and the logistics of getting students through them without affecting educational time.

The U.S. Department of Education's Federal Commission on School Safety recommends arming teachers,;however, the National Association of School Resource Officers, the National Association of School Psychologists, and the National Parent Teacher Association all oppose arming teachers (Flannery et al., 2021). Participants in the current study indicated that 82.49% of their schools do not have armed teachers or administrators, as compared to the 2.69% who do. Flannery (2021) stated that more rural schools arm their teachers; however, in this current study no rural or suburban schools indicated that their teachers or administrators are armed and 1.6% of suburban schools said they are. Notably, 5.9% of private schools said their teachers or administrators are armed compared with 2.1% of public schools.

Locking interior and exterior classroom doors can play a significant role during an active shooter event, as evidenced in the Robb Elementary school shooting in Uvalde, Texas (Langreo, 2022) where there were problems with both interior and exterior doors locking properly. Participants in this current study indicated that 58.59% of their schools have a policy of keeping classroom doors locked. Barriers to keeping classroom doors locked include finances and logistics (Langreo, 2022). The most common safety measure indicated by participants of this current study is security cameras. Almost 90% of participants' schools have security cameras. The National Center for Educational Statistics indicated that during the 2017-2018 school year, over 46% of all public schools in the United States had law enforcement officers in their schools (Digest of Education Statistics, 2019). This current study shows that 68.8% of public schools have school resource officers or security officers in their schools. The National Center for Educational Statistics also indicated that for the school year 2017-2018, urban schools had a lower percentage of schools with resource officers (34.4%) compared to rural (46.1%) and suburban (51%) (Digest of Education Statistics, 2019). In comparison, this current study indicates that 64.1% of urban schools have resource officers, 73.9% of rural, and 45.9% of suburban schools have resource officers.

The National Association of School Psychologists recommends that a school safety team should be involved in planning and implementing active shooter drills in schools. Brown (2019) stated that a school safety team should consist of law enforcement officers, emergency response personnel, teachers, administrators, counselors, and parents. Participants in this current study were asked if their schools had a safety team planning committee. Over 60% of participants said their schools had a safety team. When asked if their school collaborates with local law enforcement and emergency responder agencies, 67.34% said they do. The STOP Act provides

funding for increasing collaboration between schools and law enforcement agencies when designing and implementing active shooter drills (Howard et al., 2022).

What are the physical and psychological effects of active shooter drills on participants with comparisons by demographics across the United States?

Schonfeld et al. (2020) suggested that considering unintended consequences should be an important part of implementing active shooter drills. Unintended consequences can include physical and psychological symptoms experienced by participants. This current study asked participants if they experienced physical or psychological symptoms from active shooter drills. Just over 40% of participants stated that they do not have any physical symptoms related to the active shooter drills. Physical symptoms experienced by theparticipants included anxious feelings (158 participants), racing heartbeat (79 participants), stomachache (20 participants), and headaches (6 participants). A research study conducted by Burton (2020) investigated school principals' perspectives of conducting active shooter drills. Principals in the study indicated that they observed increased anxiety levels in staff and students. Participants in the current study were asked if they experienced feelings of anger or frustration relating to the active shooter drills. Frustration was the most common feeling, as reported by 123 of 297 participants. Comparisons were made between men and women and the physical and psychological symptoms experienced. McAllister and Martaindale (2021) noted that even the anticipation of an active shooter drill can increase stress levels in men and women. This current study found that more women than men experienced both physical and psychological symptoms relating to active shooter drills.

Schildkraut et al. (2021) explained that there is very little research on the effects of the various types of active shooter drills. Physical and psychological symptoms experienced were compared to each of the three types of active shooter drills (lockdown, multi-option response, and

active shooter simulations). Multi-option response drills were associated with the most anxious feelings (57.8%), active shooter simulation drills produced the most racing heartbeats (36.8%), stomachaches (13.2%), and headaches (10.55%) when comparing all three types of drills. When comparing psychological symptoms, active shooter simulation drills were associated with the most anger (34.2%) and multi-response drills with the most frustration (50%) when comparing all three types of drills.

Erbacher and Poland (2019) stated that research indicated that active shooter drills can negatively affect the mental health of participants who have experienced a traumatic event in their lives. This current study asked participants if they have experienced a traumatic event involving family, friends, or acquaintances and gun-related violence, such as suicide, homicide, accidental or intentional shootings, or mass shootings. The results were compared to participants experiencing physical or psychological symptoms before, during, or after an active shooter drill. A post-hoc analysis indicated that having experienced a past traumatic event involving gun-related violence has a statistically significant relationship with experiencing headaches, stomachaches, racing heartbeats, and anger relating to participating in an active shooter drill.

Participants in this study were asked if they felt the active shooter drills and safety measures at their schools properly prepared staff and students for an active shooter event. Ford and Frei (2016) explained that people are more willing to participate in drills and safety procedures if they believe the drills and procedures are effective in minimizing the probability of injury. Participants in this study were asked on a scale of 0-5 how well they felt the drills and procedures prepared them. The most common answer was 3, with the low and high ends of the scale almost equally represented. Lastly, participants were asked if their school offered training on how to recognize and respond to trauma relating to active shooter drills. Vail (2020) stated

that active shooter drills done correctly are conducted in a trauma-informed way. Over 47% of participants responded their school does not offer any training in this area, 30% indicated their school does offer training, and 22% did not know if their school does.

Implications

Schools across the United States conduct different types of active shooter drills. These drills are designed and implemented without a national standard or an understanding of which types of schools conduct each of the different types of drills (Howard et al., 2022). Schools also implement different security measures, such as metal detectors, locking classroom doors, security officers, and arming teachers (Duff, 2020). There is limited research on the physical and psychological effects of active shooter drills on participants (Burton, 2020).

The first implication of this study is an understanding of which types of schools are conducting which types of active shooter drills. This provides a basis for further research when determining best practices for these drills. By understanding what type of drills are already conducted and the effects of these drills, researchers can determine if these drills are causing unintended effects and explore possible changes to the drills or the procedures. The study also provides an understanding of the various safety measures that are taken at different schools across the United States. This is helpful information when determining the effectiveness of these safety measures.

A second implication of this study is an understanding of the physical and psychological effects of active shooter drills on the teachers, administrators, counselors, and classified staff who are participating in them. This study has shown that some adults do experience physical symptoms, such as anxious feelings, headaches, stomachaches, and racing heartbeats before, during, and after participating in active shooter drills. The study also shows that some

participants experience psychological symptoms of anger and frustration before, during, and after participating in active shooter drills.

Lastly, this study shows a statistically significant relationship between having experienced a past traumatic event involving gun-related violence and experiencing headaches, racing heartbeats, and anger before, during, and after participating in active shooter drills. Stock (2022) referred to a response cost as the physical effort needed to complete a behavior. These physical and psychological symptoms can be considered a response cost for participating in active shooter drills. This response cost should be considered when planning and conducting active shooter drills in schools.

The information from this study can be used to improve procedures to mitigate psychological and psychological symptoms experienced by participants of active shooter drills. Burton (2020) stressed that it is in the best interest of all educational stakeholders to determine a way to conduct active shooter drills that is not going to traumatize participants. Schildkraut et al. (2020) explained that school districts must balance the mandate of active shooter drills with the needs of the participants. Active shooter drills should be designed with the participant's maturity level, prior traumatic history, and special needs considered (Brown 2019). Another way to lessen physical and psychological symptoms is to allow participants to opt out of the drills (Eckhoff & Goodman-Scott, 2021). Vail (2020) suggested conducting drills in a trauma-informed way which includes always calling it a drill, not using simulations, teachers modeling calm behavior, and debriefing with participants after the drill is completed.

Limitations

A threat to a research study's external validity was the ability to generalize the findings to other subjects (Coleman, 2019). One of the limitations of this study is that the findings on

physical and psychological symptoms cannot be generalized to all participants in active shooter drills, as students were not surveyed. Students are the biggest number of participants of these drills in a school setting. The results of a research study conducted by Moore-Petinak et al. (2020) revealed that active shooter drills come with a high emotional cost to students and that very few students reported feeling safer as a result of these drills. The results of this current study cannot be generalized to students, as students will have different frames of reference, lived experiences, and expectations relating to active shooter drills when compared to adults.

Another limitation to this study was that fear was not included as a psychological symptom. A research study by Burton (2020) surveyed school principals. Every principal surveyed stated that fear of a school shooting was elevated after an active shooter drill was conducted. Principals who participated in the Burton study said they had to address a culture of fear in their schools relating to the threat of mass shootings (2020). A study by Huskey and Connell (2020) found that the psychological well-being of students was threatened due to students coming to school in a state of fear, rather than a state of safety.

A third limitation of this study was the timing of the survey. Coleman (2020) listed one threat to internal validity of a research study as “history,” which is described as the time between when an event happens and when responses are measured. A limitation to this study was that the participants were not surveyed immediately after participating in an active shooter drill. The survey relied on the participants’ memory of their physical and psychological feelings when they participated in active shooter drills in the past. A final limitation was the survey itself since it has not been tested for validity and reliability.

Recommendations for Future Research

Recommendations for further research include surveying students to understand the physical and psychological effects of active shooter drills from a student's perspective. The American School Counseling Association explains that students can experience emotional trauma and increased anxiety from participating in active shooter drills in school (Eckhoff & Goodman-Scott, 2021). A study by Moore-Petniak (2020) showed that students experienced feeling unsafe and afraid after participating in an active shooter drill. Bonanno et al. (2021) conducted a research survey with students ages 8-11 and found that students felt frustrated and annoyed about active shooter drills. One student reported having a stomachache and headache when the drill began. Further research could seek to understand if these types of symptoms are common among students of different ages at different types of schools across the country.

Another recommendation for future research is to explore the psychological symptoms of fear as it relates to adults participating in active shooter drills. In a research study by Burton (2020), it was found that every principal in the study acknowledged that fear of a school shooting was elevated in their school after an active shooter drill was conducted. Principals in the same study noted students coming to school with increased fear from participating in active shooter drills (Burton, 2020). Kaminski et al. (2010) studied fear in college students after an active shooter event took place on their campus. They noteed that walking students through drills and simulations can add to this fear. It would be enlightening to find out if teachers, administrators, school counselors, and other school personnel experience fear relating to participating in active shooter drills.

A future study could address the timing of the survey by asking the participants to complete a survey about their physical and psychological symptoms immediately after

participating in an active shooter drill. A qualitative study conducted with interviews directly after an active shooter drill could provide a more detailed understanding of the physical and psychological effects experienced relating to participating in the drills. Another recommendation for future research would be to conduct a qualitative study on the physical and psychological effects of active shooter drills with participants who have experienced a traumatic event involving gun-related violence. Such a study could provide a deeper understanding of the types of past traumatic events experienced and how this experience relates to symptoms experienced during active shooter drills.

Summary

Most schools across the United States conduct active shooter drills. The types drills they conduct vary and can include lockdown drills, multi-option response drills, and active shooter simulations. This study sought to provide a better understanding of the types of drills conducted at different types of schools. Other safety measures schools take, such as metal detectors, arming teachers, locking classroom doors, and having a school resource officer were also researched. Participants answered questions about which type of drills their school conducts and the other safety measures in place at their school. The physical and psychological effects of participating in active shooter drills have not been thoroughly researched. This study asked participants which physical and psychological symptoms, if any, they experienced relating to participating in active shooter drills.

This chapter discussed the results of the survey explaining how the survey answered the research questions including what type of active shooter drills are conducted in various schools across the United States, the frequency of these drills, other safety measures taken at various schools, as well as the physical and psychological effects of participating in these drills. The

lockdown drills, where students hide quietly in their classrooms, are the most common active shooter drills conducted, followed by multi-option response drills, followed by active shooter simulation drills. There are some schools that do not conduct active shooter drills. Of those schools, more private schools do not conduct active shooter drills in comparison with public schools. More schools conduct active shooter drills quarterly than at any other frequency. Only 10% of schools have metal detectors. Over 80% of schools do not arm teachers or administrators. Over 50% of schools surveyed have a policy of keeping their classroom doors locked and over 90% of schools surveyed have security cameras. Over 60% of schools have safety teams and over 60% of schools state that they collaborate with local law enforcement agencies when designing and implementing their active shooter drills.

Physical and psychological symptoms are experienced by participants relating to active shooter drills. Anxious feelings were experienced by more participants, followed by racing heartbeats, stomachaches, and then headaches. More women than men experience physical and psychological symptoms related to participating in active shooter drills. In a post-hoc analysis, a statistically significant relationship was found between having experienced a traumatic event involving gun-related violence and having physical and psychological symptoms related to participating in active shooter drills.

The chapter discussed implications of the study were discussed, including understanding which types of various schools are conducting which types of active shooter drills and what other security measures are being taken at different schools, which can help with determining best practices for school safety. Another implication mentioned is understanding the physical and psychological symptoms participants experience relating to active shooter drills. This knowledge

can be useful as school districts, administrators, and lawmakers plan and implement procedures for school safety.

Limitations of the study were also discussed. This study did not survey students who have the highest number of participants in active shooter drills. Other limitations include not surveying participants immediately after participating in an active shooter drill and not including fear as a psychological symptom of participating in active shooter drills. Recommendations for further research were provided, including surveying students, exploring other psychological symptoms, and conducting a qualitative research study to better understand the past traumatic experiences of participants who report having physical and psychological symptoms relating to active shooter drills.

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APPENDICES

APPENDIX A

Active Shooter Drill Survey

Pre-screening questions:

1. Are you over the age of 18?

a. Yes

b. No

2. Are you employed by a school for any grades from kindergarten through 12th grade?

a. Yes

b. No

What is your Prolific ID: _____

1. What is your regional location in the United States?

a. Northeast

b. Midwest

c. West

d. South

2. What is your role/position in the school?

a. Teacher
b. Administrator
c. Counselor
d. Classified Support Staff

3. How long have you held your current position?

a. 1-3 years
b. 4-6 years
c. 7-10 years
d. 11-15 years
e. Over 15 years

4. What type of school do you work in? (Check all that apply)

a. Public
b. Private
c. Preschool
d. Elementary (Grades K-5)
e. Middle (Grades 6-8)
f. High (Grades 9-12)
g. Rural
h. Suburban
i. Urban

5. What is the socio-economic status of your school?

a. Under 25% free/reduced meals
b. 26%-50% free/reduced meals
c. 51-75% free/reduced meals
d. Over 76% free/reduced meals

6. What is your biological gender?

a. Male
b. Female

7. What is your age range?

a. 20-25 years old
b. 26-35 years old
c. 36-45 years old
d. 46-55 years old
e. 56-65 years old
f. Over 65 years old

8. Have you personally experienced a traumatic event involving your family, friends, or acquaintances related to gun violence? (Such as a suicide, homicide, accidental or intentional shooting, or mass shooting not at your school)

a. Yes
b. No

9. Has your school ever had an active shooter event?

a. Yes
b. No

10. What type of active shooter drills does your school conduct? Check all that apply.

a. No active shooter drills
b. Lockdown drills where students are quiet and hide in the classroom
c. Multi-response active shooter drills- students are given multiple options, such as hiding, fighting back, and running.
d. Active shooter simulations

11. What is the current schedule of these drills at your school?

a. Never
b. Weekly
c. Monthly
d. Quarterly
e. Semi-Annually
f. Annually

12. How are active shooter drills announced in your school? Check all that apply.

a. Intercom
b. Texting/Email/Phone Call/Other Telecommunication
c. A system with light and/or sound, similar to a fire alarm
d. Other

13. Does your school differentiate active shooter drills for younger or neurodiverse students?

a. Yes
b. No
c. I am unsure

14. Are you given advanced warning of these drills? If so, how much advance notice do you receive? Check all the apply.

a. No notice
b. 1-3 days' notice
c. One week's notice
d. One month's notice
e. Drills are scheduled and on the calendar for the entire school year

15. On a scall of 0-5, with 0 being not at all prepared, and 5 being very prepared, do you feel these drills properly prepare teachers, staff, and students for an active shooter event?

a. 0 (not at all prepared)
b. 1
c. 2
d. 3
e. 4
f. 5 (very prepared)

16. I feel more prepared for an active shooter event because of the procedures in place at my school.

1. Strongly disagree
2. Disagree
3. I don’t know
4. Agree
5. Strongly agree

17. Do you experience physical symptoms, such as a racing heartbeat, anxious feelings, headache, or stomachache relating to active shooter drills? If so, when do they occur? Check all that apply.

a. Racing heartbeat
b. Anxious feelings
c. Headache
d. Stomachache
e. Before the active shooter drill
f. During the active shooter drill
g. After the active shooter drill
h. I do not experience any physical symptoms

18. Do you feel anger related to the active shooter drills? If so, when do you feel angry?

a. Before the active shooter drill
b. During the active shooter drill
c. After the active shooter drill
d. I do not feel anger

19. Does your school offer the option to students, teachers, or staff of not participating in the active shooter drills?

a. Yes
b. No

20. Have you ever opted out or stayed home to avoid an active shooter drill at your school? If so, how often?

a. Regularly
b. Occasionally
c. Rarely
d. Never

21. Does your school have metal detectors?

a. Yes
b. No

22. Does your school have a policy of keeping classroom doors locked?

a. Yes
b. No

23. Does your school have security cameras?

a. Yes
b. No

24. Does your school have a safety team planning committee?

a. Yes
b. No
c. I am unsure

25. Does your school have a plan for students to reunite with family members (reunification plan) after an active shooter event?

a. Yes

b. No

c. I am unsure

26. Does your school collaborate with local law enforcement and emergency response agencies to develop and carry out your active shooter drills?

a. Yes

b. No

c. I am unsure

27. Are any of your teachers/administrators armed?

a. Yes

b. No

28. Does your school have an on-campus school resource or security officer?

a. Yes

b. No

29. Does your school offer training on how to recognize and respond to trauma related to active shooter drills?

a. Yes

b. No

c. I am unsure

Your completion code is CK2VTLFF.

Appendix B

Consent

Title of the Project: Active Shooter Drills in Schools Across the United States

Principal Investigator: Barbara Slater, Student/Doctoral, School of Behavioral Sciences, Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be 18 years of age or older and employed by an elementary, middle, or high public or private school in the United States in one of the following roles: administrator, teacher, counselor, or classified support staff.

Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of the study is to understand what types of active shooter drills and other safety precautions and procedures are being implemented at various schools throughout the United States. The study also will provide an understanding about any physical and psychological effects these drills and procedures may have on school personnel participating in them.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following:

- Complete a 29-question survey, which should take approximately 5 minutes.

How could you or others benefit from this study?

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include an understanding of what type of active shooter drills are being conducted in various schools across the United States, an understanding of other safety precautions and procedures being implemented at various schools across the United States, and an understanding of the physical and psychological effects these drills and procedures have on school personnel participating in them. This information can assist school administrators and lawmakers when determining best practices for keeping individuals safe at school.

What risks might you experience from being in this study?

The expected risks from participating in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How will personal information be protected?

The records of this study will be kept private.

Participant responses will be anonymous.

How will you be compensated for being part of the study?

Participants will be compensated for participating in this study through Prolific at a rate of $12.00 per hour. The survey is estimated to take 5 minutes to complete, therefore, compensation will be $1.00 per participant.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time prior to completing the survey without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Barbara Slater. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at [redacted]. You may also contact the researcher's faculty sponsor, Dr. Pamela Moore, at [redacted]

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the IRB. Our physical address is Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA, 24515; our phone number is 434-592-5530, and our email address is irb@liberty.edu.

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of this document for your records. If you have any questions about the study later, you can contact the researcher using the information provided above.

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

_____

Printed Subject Name

Appendix C

Research Participants Needed

Active Shooter Drills in Schools Across the United States

Are you 18 years of age or older?

Are you employed by a public or private elementary, middle, or high school in one of the following roles: administrator, teacher, counselor, or classified support staff?

If you answered **yes** to each of the questions listed above,

you may be eligible to participate in a research study.

The purpose of this research study is to understand what types of active shooter drills, as well as other safety precautions and procedures are being implemented at various schools across the United States and to understand how these drills and procedures physically and psychologically affect the school personnel participating in them.

Participants will be asked to complete a 29-question survey, which will take approximately 5 minutes.

Participants will receive compensation of $12.00 per hour, which equates to $1.00 per survey, based on the estimate 5 minutes to complete the survey.

If you would like to participate, please click here [include hyperlink to online survey and complete the survey.

A consent document is provided on the first page of the survey.

Barbara Slater, a doctoral student in the School of Behavioral Sciences at Liberty University,

is conducting this study.