



Review

Reconsidering Lockdown Drills in K-12 Schools: A Scoping Review of Empirical Evidence on Implementation Practices, Trauma-Informed Considerations, and Reported Outcomes

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Abstract

Lockdown drills have become standard practice in K-12 schools across the United States, but there are concerns about the psychological health impact, quality of implementation, and equity implications of current practices. This scoping review compiles the empirical literature on lockdown and active-threat drills to provide insight into how drills are defined and conducted, what outcomes are measured, and the remaining gaps. In accordance with well-researched scoping review methodologies, 27 peer-reviewed U.S.-based studies were aggregated from six primary areas: drill definitions and typologies, implementation practices, reported outcomes, trauma-informed and developmental considerations, equity and disability inclusion, and evidence gaps. Findings reveal wide variability among drill terminology and protocol categorization and most studies emphasize advance warning and low-realism practices. Psychological outcomes are measured much more often than objective measures of implementation fidelity or physical preparedness. Educator and staff experiences, caregiver perceptions, and longitudinal outcomes are underrepresented. Although a number of studies report developmental adaptations and disability accommodations, comprehensive equity analyses remain rare. Overall, potential psychological harms are more clearly documented than protective effects in the literature. This review emphasizes the importance of standardized drill taxonomies, fidelity measurement methods, trauma-informed mental health integration, and inclusive designs to inform school safety policy and practice.

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1. Introduction

While schools have historically been among the safest places to be (Cornell 2018), the increase in school shootings and school violence has resulted in the rise in safety drills, law enforcement, and other emergency management measures in American schools.

While the field of emergency management has an established body of research, little research had been done on drills with children and youth prior to their widespread implementation in K-12 schools. In particular, there exists a paucity of studies which focus on the psychological impact of drills on children and adolescents. Parents, students, and professionals in some communities have raised concerns over the intensity of some crisis drills, asserting that they may cause trauma in the school population. There have been reports of active shooter drills conducted with props including smoke, firearms, and loud bangs to simulate shooters, all while students and staff hide from a fictional perpetrator, a situation that some participants report as feeling very real. Furthermore, the variability in how these drills are conducted complicates efforts to assess their effectiveness, as well as the resulting potentially positive and negative outcomes on the school community. Many states do not have uniform names for drills, resulting in local districts following the pattern of inconsistency. This practice leads to confusion among stakeholders and students, especially those who move between different buildings and are expected to follow varied protocols. Of special concern are lockdown drills, which require all occupants of the school to protect themselves from a danger that is already inside of the building.

While gun violence inside of a school building is extremely rare, children are still required to practice regularly for this highly unlikely event. It is typically expected that students hide in the dark and remain quiet during the drill. Yet, this behavior often violates human instinct during a threat, which usually pushes people to respond to the adrenaline by running away. Additionally, young children crave the safety of their caregivers and may begin to cry, scream, or panic during lockdown drills, causing school mental health leaders to wonder if this type of drill is developmentally appropriate for young children.

The rise in lockdown drills has been accompanied by a process of normalization, in which lockdown drills are no longer treated as responses to rare threats but as expected components of students' educational experiences. In 2019, Florida, for example, mandated monthly active shooter drills (Howard et al. 2022). As a result, students and educators in Florida schools are regularly exposed to simulated emergency scenarios that may shape perceptions of safety, risk, and schooling itself in negative ways. As of 2024, at least 37 states require K-12 schools to conduct active shooter drills, typically at least once or more often each year (Churchill et al. 2024).

Although lockdown drills are widely adopted and practiced, relatively little attention has been paid to how the normalization of lockdown drills intersects with child developmental and psychological impacts. Questions remain regarding whether current practices adequately account for students' cognitive and emotional capacities, as well as the potential long-term implications of repeated exposure to high-stress situations. A concerning paradox emerges: the very drill designed to protect students may itself cause harm. Additionally, the variability and inconsistency of practices leads to concerns with equity, as practices do not take into account differences in community composition, resources, student populations, students and staff with disabilities, students and staff with prior trauma, and other factors that may be cause for concern. Often, individuals with emergency management backgrounds, with little to no training in child development, design and implement school safety drills. Schools serving historically marginalized populations, for example, may adopt more intensive or security-oriented practices, raising questions about disproportionate exposure to high-stress environments and the broader implications for educational equity. Additionally, schools in lower socioeconomic communities may lack resources to successfully implement safety programming, including properly running safety drills.

Due to these concerns, the authors have conducted a scoping review of the literature on school crisis drills. Because these drills are varied, the focus of the review has been

focused on the practices and impact of lockdown drills. After active shooter drills, lockdown drills are among the most concerning for stakeholders working with students and staff in K-12 schools (Everytown for Gun Safety 2020). It should be noted that some authorities consider lockdown drills to be a version of active shooter drills. For example, it is quite common for leaders in the field to characterize a lockdown drill as one that addresses any internal threat, which could be an active shooter, a wild animal, or another threat. However, the protocol of turning lights off, staying quiet, and hiding are inconsistent with avoiding a wild animal. As it is most commonly carried out, the drill is clearly designed to help students conceal themselves to avoid a human intruder. Despite the widespread adoption and normalization of lockdown drills in K-12 schools, limited and inconsistent evidence exists regarding their implementation and their developmental, psychological, and equity-related impacts; therefore, this scoping review systematically maps the existing literature on lockdown drill practices, contexts, and outcomes to identify key patterns, gaps, and implications for research, policy, and practice.

2. Literature Review

2.1. Lockdown Drills Defined

According to the National Center for School Safety, a lockdown drill is “a set of procedures used by building occupants for any threat inside the building” (National Center for School Safety 2021). Terms may be confusing, as the current generation of lockdown drills are referred to by numerous names in state and local education agencies (LEA) policies including but not limited to secure campus, shelter-in-place, silent safety, lockdown, multi-option safety, active shooter, or stranger on-site drills (Eckhoff and Goodman-Scott 2023). Traditional lockdown drills, if evacuation is not feasible, include locking the door, moving to a safe location, and staying quiet (U.S. Department of Homeland Security 2008). Lockdown drills are designed to prepare and train students and staff for a range of school-based critical incidents, one of which is an active shooter event (Dailey et al. 2023).

Option-based strategies, or multi-option drills, direct students, faculty, and staff to use differing response tactics to escape, hide or deter the shooter, such as barricades or actively resisting an intruder (ALICE Training Institute 2018; Schildkraut et al. 2020). The Department of Homeland Security (DHS), the U.S. Department of Education, and the Federal Bureau of Investigation (FBI) all endorse the “Run, Hide, Fight” protocol, also an options-based model (U.S. Department of Homeland Security 2008). These models make sense as the natural human instinct for most adults is to react to fear by running from danger, hiding from the danger, or confronting the danger. It is essential to recognize that extant documents on options-based protocols do not mention children or students. Furthermore, recent documents point to the harm that can be caused by teaching children options-based protocols. Realistic simulations, deception, and high-intensity drills can increase anxiety, distress, and confusion in children (NASEM 2025). The National Academies of Sciences, Engineering, and Medicine (NASEM 2025) released a report showing concern for the mental health of children, as well as children with disabilities, who engage in active shooter drills.

The language and practices used in school lockdowns originally came from prison systems, where lockdowns were used to manage inmates during emergencies (Fuentes 2013). Because of this historical context, it is important to examine how these practices might affect the overall environment and atmosphere that students and staff experience in schools (Eckhoff and Goodman-Scott 2023). Because each state sets their own laws and policies around safety drills, limited guidance exists on what these drills should look like, or the impact on students of the many variations (ElSherief et al. 2021). It is important to note that recent efforts have been undertaken to consider the impact of drills on children. One source, the National Association of School Psychologists, released updated guidance

on School Safety and Lockdown Drills (NASP 2026), indicating that options-based drills can be harmful to children when done with sensorial or simulation style approaches. For example, walking through the drill is less likely to provoke a fear reaction from children than actual role-play, which is likely to provoke a fear response.

2.2. Trauma-Informed Practices

Trauma-informed practices focus on creating a safe school culture, building relationships, and supporting students' self-efficacy (National Education Association 2023); however, there can be a gap between research-based recommendations and the everyday realities of educators. In the field of school safety, drilling has become commonplace before research-based recommendations could be made available to schools. Thus, many schools have conducted drills without the essential trauma-informed practices woven into their implementation.

Because teachers play a critical role in implementing lockdown response protocols, their ability to respond with confidence and fidelity is essential to protecting the school community (Dailey et al. 2023). However, research examining school staff members' experiences with lockdown drills remains limited. As integral members of the school community, teachers' perceptions and lived experiences are a crucial component of understanding the broader impacts of school safety measures (Eckhoff and Goodman-Scott 2023). In fact, some research has revealed that teachers' primary focus during drills was ensuring the physical safety of students, even over their own (Eckhoff and Goodman-Scott 2023).

School-based health professionals are essential, not only to physical and mental health services, but also to broader student support systems (NASEM 2025). For this reason, school-based health professionals are integral members of any school's emergency preparedness team. School shooter drills are not deliberately designed to cause trauma; they are intended to better prepare the school community to respond to such an event. However, school shooter drills can also have negative psychological effects on school communities (ElSherief et al. 2021).

The literature reflects considerable variability in lockdown drills, including differences in drill types and the terminology used to describe them. Lockdown drills have been criticized by some as psychologically harmful for children, serving to increase fear and victimization among students and teachers (Huskey and Connell 2021). In some instances, students must remain in designated hiding spaces while staying quiet, locking doors, and turning off lights. There are also instances where students and staff are told to fight back, distract the assailant, and/or evacuate, behaviors that are not developmentally appropriate for young children and many children with disabilities. In some schools, drills are announced and in others they are not. Active shooter simulations implemented without advanced warning to students and staff increase the likelihood of negative reactions for students (Rygg 2015). Additionally, there are situations where simulations with fake blood, masked intruders, and simulated gunfire are used in drills. While required lockdown drills and other active shooter protocols are becoming increasingly commonplace in many United States (U.S.) public schools, little is known about the immediate and long-term social and emotional impacts that such drills may have on students and school staff (Eckhoff and Goodman-Scott 2023).

Any drill can be particularly challenging and anxiety-provoking for students with developmental and intellectual disabilities. Research in K-12 education of children with Down syndrome and their responses to school safety drills is extremely limited (Frawley et al. 2024). It is the duty of school administrators to make sure that crisis plans consider and support the needs of the disabled population of students and staff. Loud alarms, flashing lights, and uncertain environments have the potential to elevate the risk for injury,

loss, and trauma (Frawley et al. 2024). There should also be adaptations for drills to allow students with disabilities to safely participate (Safe and Sound Schools 2021).

2.3. Best Practices

The effect school lockdowns have on children is not yet well-researched (Eckhoff and Goodman-Scott 2023). School counseling staff will often see students after a lockdown drill if they are struggling. School counselors understand that the intent of drills is to train and prepare; however, they indicate that lockdown drills increase some students' anxiety and fear and parents' worry (Goodman-Scott and Eckhoff 2020). In particular, lockdown drills can be challenging for students with Autism Spectrum Disorder. Lockdown drills require skills and actions that are characteristically difficult for children with ASD (Jackson and Golini 2024). Practitioners must explicitly teach the individualized strategies necessary to navigate a lockdown scenario to students with ASD (Jackson and Golini 2024).

Behavioral skills training (BST) is a common procedure used to teach safety skills to children (Dickson and Vargo 2017). In one study, kindergarteners who received BST instruction demonstrated understanding of six of seven lockdown drill steps, and reduced noises that could alert an intruder of their presence (Dickson and Vargo 2017). Schools that choose to implement shooter drills during this time, as the evidence base is being developed and assessed, may prioritize trauma-informed training and consider excluding younger students, given their unique developmental needs (ElSherief et al. 2021). Concerns over student mental health have begun to influence policy decisions in a number of states (NASEM 2025). According to World Population Review (2026), required lockdown drills ranged from zero in California and Colorado to five per year in Minnesota. From 1966 through 2025, California reported 277 school shootings, Colorado reported 44 school shootings, and Minnesota reported 33. Reported shootings do not appear to be associated with the presence of requirements.

The 2025 report from the National Academies of Sciences, Engineering, and Medicine (NASEM 2025) calls for urgent, trauma-informed reforms to school active shooter drills, warning that high-intensity simulations harm student mental health, some of which will be shared later in this paper. One of their recommendations is that schools should prioritize student well-being by avoiding high-intensity lockdown drills that use realistic simulations, such as blank gunfire, actors portraying active shooters, or loud shouting, as these practices can create unnecessary fear and anxiety. Instead, they posit that drills should be developmentally and age-appropriate, with clear and transparent communication provided to both students and parents to reduce confusion and distress. The report asserts that it is essential for schools to avoid any form of deception during drills, ensuring that students and staff are never led to believe that a real attack is occurring. In addition, emergency preparedness practices should be inclusive and responsive to the needs of all students, with particular attention to students with disabilities and Black and Latinx students, who may experience these drills differently due to varied social and psychological factors. Overall, school safety planning should take a comprehensive approach, recognizing that drills are only one part of preparedness and should not replace broader prevention and safety strategies (NASEM 2025).

NASP (2026) offers extensive considerations for school leaders to plan and implement drills. Key recommendations include: using a multidisciplinary team to plan, carry out, and evaluate drills; customizing drills to the needs of your school; developing a communication plan that provides advance notice of all drills and offers the ability to select an alternative form of preparation; and ensuring that there is a long-term follow-up plan to support sustainability that includes assessing preparedness training needs. For a detailed review, readers are referred to the guide. The growing concern of potential harm

caused by lockdown drills in K-12 schools was the impetus for this scoping review. As education researchers continue to study the impact of drills, a clear understanding of extant literature sets the foundation for future work, ensuring that students are safe in our nation's schools.

2.4. Purpose of the Study

The purpose of this study was to conduct a systematic scoping review of peer-reviewed empirical research on K-12 lockdown drills. Specifically, the review aimed to map how lockdown drills are defined, implemented, and studied in the empirical literature, summarize the outcomes examined for students, staff, and caregivers, and examine the extent to which studies incorporate developmental, disability-inclusive, and trauma-informed considerations. Rather than evaluating the effectiveness of lockdown drills, this review sought to clarify the scope and characteristics of the existing evidence base and to identify gaps to inform future research, training, and policy development. The research questions were:

RQ1. *How are lockdown drills defined and categorized in empirical peer-reviewed studies?*

RQ2. *How are lockdown drills implemented (announcement, realism, frequency, communication)?*

RQ3. *What outcomes are reported for students, staff, and caregivers?*

RQ4. *How are trauma-informed and developmental considerations addressed?*

RQ5. *How does the empirical literature address disability inclusion and equity?*

RQ6. *What evidence gaps exist to inform future research, practice, and policy?*

2.5. Methods

This study employed a scoping review design, guided by established methodological frameworks from the Joanna Briggs Institute (JBI) and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) guidelines. The PRISMA-ScR checklist was used to guide transparent reporting across all stages of the review, including rationale, eligibility criteria, search strategy, source selection, data charting, and synthesis of results. A review protocol guided the search strategy, eligibility criteria, and data extraction procedures. The protocol was developed prior to full data extraction to enhance methodological transparency and reduce the risk of post hoc decision-making and was registered on the Open Science Framework (OSF) (2 April 2026). A completed PRISMA-ScR checklist is provided (Table 1).

Table 1. PRISMA Extension for Scoping Reviews (PRISMA-ScR) Checklist.

Section	Item	PRISMA-ScR Item Description	Reported on Page #
TITLE	1	Identify the report as a scoping review.	1
ABSTRACT	2	Provide a structured summary including background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions.	1
INTRODUCTION	3	Describe the rationale for the review in the context of existing knowledge.	3

METHODS	4	State the objectives and/or research questions guiding the review.	11
	5	Indicate whether a review protocol exists and where it can be accessed (e.g., OSF registration).	12
	6	Specify eligibility criteria for sources of evidence (e.g., years, language, population, concepts, context).	13
	7	Describe all information sources (e.g., databases, registers, gray literature, hand searching) and date of last search.	13
	8	Present the full search strategy for at least one database, including limits used.	13
	9	Describe the process for selecting sources of evidence (screening and eligibility).	13
	10	Describe the data charting process (e.g., forms used, calibration procedures, independent charting).	14
	11	List and define all variables and data items charted.	14
	12	If applicable, describe any critical appraisal of included sources and how it was used.	N/A
	13	Describe methods for synthesizing and summarizing results.	14
RESULTS	14	Provide numbers of sources screened, assessed for eligibility, and included, ideally, with a flow diagram.	15–16
	15	Present characteristics of included sources of evidence.	16–26
	16	Report results of any critical appraisal (if conducted).	N/A
	17	Present the results of the charting of data aligned with research questions.	25–26
DISCUSSION	18	Summarize and/or present the overarching synthesis of results.	26
	19	Summarize key results in relation to review objectives and questions.	26
	20	Discuss limitations of the scoping review process.	28
	21	Provide conclusions and implications for research, policy, and/or practice.	29
FUNDING	22	Describe sources of funding for the included sources of evidence and for the review.	N/A

Note. This checklist is based on the PRISMA Extension for Scoping Reviews (PRISMA-ScR).

A scoping approach was selected to systematically summarize the breadth, characteristics, and gaps in the literature on K-12 lockdown drills, rather than to evaluate intervention effectiveness. This design is appropriate for topics involving conceptual ambiguity, diverse methodologies, and a dispersed body of evidence (Arksey and O'Malley 2005; Levac et al. 2010; Peters et al. 2021). Prior research documents ongoing confusion in terminology and practice, inconsistent drill implementation, and the absence of national standards (Key 2026; NASEM 2025). Empirical literature further shows that the evidence base encompasses a wide range of methodological designs, including student and staff surveys, qualitative studies, quasi-experimental analyses, and large-scale social media research. Across these approaches, findings are mixed and sometimes contradictory with respect to preparedness, fear, anxiety, and differential effects by developmental level, disability status, and prior exposure to violence (ElSherief et al. 2021; Temple et al. 2025; Worthington et al. 2021). Therefore, conducting an effectiveness-focused systematic review would be premature. Consistent with established scoping review aims, this review was designed to map how lockdown drills are defined and studied, catalog reported

implementation practices, summarize the range of outcomes examined, and identify substantive gaps in the evidence base (Peters et al. 2021; Tricco et al. 2018).

2.5.1. Eligibility Criteria

Eligibility criteria were defined using the Population–Concept–Context (PCC) framework recommended for scoping reviews. The population of interest included K-12 students, school personnel (e.g., teachers, administrators, and school counselors), and caregivers. The concept encompassed lockdown drills, active shooter drills, intruder drills, and related threat-based school safety exercises; studies focused exclusively on fire drills or disaster preparedness unrelated to intentional human threat were excluded unless explicitly linked to lockdown-type practices. The context was limited to K-12 school settings, primarily within the United States.

2.5.2. Search Strategy

A comprehensive search strategy was developed in consultation with the review team and applied across multiple bibliographic databases relevant to education, psychology, public health, and social sciences (e.g., ERIC, PsycINFO, Scopus). Search terms combined controlled vocabulary and keyword blocks related to (a) school safety drills, (b) K-12 educational settings, (c) student and staff outcomes (e.g., preparedness, perceived safety, anxiety, fear, distress), (d) drill implementation characteristics and policy context, (e) trauma-informed and multidisciplinary processes, and (f) equity, disability inclusion, and language access. Consistent with the scope of this review, searches were limited to empirical studies published in peer-reviewed journals. Reference lists of included articles were also screened to identify additional eligible studies. For example, a full search strategy for ERIC (EBSCO) is provided below:

(DE “Drills (Practice)” OR DE “Emergency Programs” OR TX (drill* OR lockdown OR “active shooter” OR “shelter-in-place”)) AND (TX (school* OR K-12 OR K12 OR elementary OR “middle school” OR “high school”)) AND (TX (preparedness OR “perceived safety” OR anxiety OR fear OR distress OR trauma OR wellbeing)) AND (TX (announce* OR unannounce* OR realism OR communication OR notification OR opt-out OR consent OR debrief* OR “trauma-informed”))

2.5.3. Screening Process

All identified citations were imported into reference management software and duplicates were removed prior to screening. Screening proceeded in two stages: (1) title and abstract screening, followed by (2) full-text review for eligibility. Screening was conducted by members of the review team (first and third authors) using prespecified inclusion and exclusion criteria. The first author trained the research team on the inclusion and exclusion criteria and data charting process. To enhance study rigor, at the onset of the screening process a random sample of four (4) studies (10%) were selected to assess coder training. The first and third author, with additional assistance from the fifth author, a counselor education doctoral student, independently reviewed the final list of studies for inclusion in the scoping review. Discrepancies were resolved through discussion to ensure consistent application of criteria.

2.5.4. Scoping Procedures, Data Charting

Data charting was conducted using a standardized extraction form that was developed in advance and pilot-tested to ensure consistency and clarity. The charting form was designed to support descriptive mapping rather than evaluation of intervention effectiveness. Extracted data included bibliographic details (e.g., year, country, source type), study design, setting and grade band, participant characteristics, and lockdown drill

terminology and type. Implementation characteristics were charted when available, including announcement status, realism level, frequency, duration, caregiver notification, opt-out provisions, developmental adaptations, disability accommodations, and multidisciplinary involvement. Extracted content also included reported outcomes, harms or adverse events, equity considerations, and references to trauma-informed or developmentally responsive practices. Each source was additionally mapped to the relevant research question(s). When information was not reported, this was documented as such. These procedures align with guidance for transparent and reproducible data charting in scoping reviews.

2.5.5. Data Analysis

Data were extracted and charted using a standardized form in Microsoft Excel to capture study characteristics (e.g., publication year, study design, target population, and drill type and characteristics). Following this initial mapping, NVivo (Lumivero 2025) was used to support qualitative coding and organization of extracted data, facilitating the identification of patterns and categories across studies. AI-assisted tools were then used as a supplementary analytic aid to support code refinement, consistency checking, and the summarization of findings. All AI-generated outputs were critically reviewed and validated by the research team to ensure accuracy and alignment with the coding framework. Final coding decisions and interpretations were determined by the authors. Descriptive numerical analyses (frequencies and percentages) were subsequently conducted, and results are presented using frequency tables to illustrate the distribution, volume, and evolution of the literature over time.

2.5.6. Results

The results of the search and selection process are presented in the PRISMA-Scr flow diagram (Figure 1), followed by a descriptive synthesis mapping definitions, implementation practices, study designs, and reported outcomes across all sources. Database searching yielded 94 records, with an additional 66 records identified through other sources (Google Scholar and Elicit). After removal of duplicates, 39 records were screened, resulting in 38 full-text articles assessed for eligibility. Eleven (11) full-text articles were excluded based on prespecified criteria. A total of 27 studies met inclusion criteria and were included in the final scoping review.

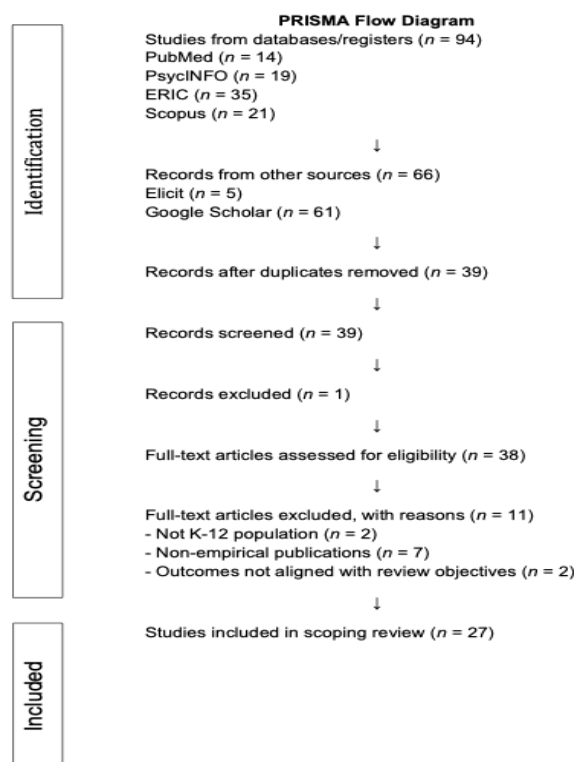


Figure 1. PRISMA-ScR flow diagram of the study selection process.

2.6. Study Characteristics

2.6.1. Methodology and Demographics

Across the 27 coded studies, participant samples were predominantly adult-focused, with more than half of studies including K-12 school personnel (teachers, staff, administrators, principals, counselors, or paraprofessionals). Fewer studies directly included current K-12 students, and when students were sampled, the focus skewed toward secondary grades (6-12), with comparatively limited representation of elementary-only samples and very sparse coverage of early childhood education (ECE) contexts. Caregiver-only perspectives were rare, and a subset of studies relied on postsecondary or young adult participants reflecting retrospectively on K-12 experiences, representing an important boundary condition for interpreting student outcomes.

Methodologically, the literature was dominated by quasi-experimental, cross-sectional, and mixed-methods designs, with relatively few fully experimental or randomized studies. Common analytic approaches included regression-based models (e.g., OLS, logistic, Poisson, moderation), group-comparison statistics (ANOVA, *t*-tests, chi-square), and, in a smaller subset, latent variable and measurement modeling (SEM, CFA, EFA, PCA). Qualitative analyses, primarily thematic analysis and grounded theory, appeared in mixed-methods and simulation-based studies but were less prevalent overall.

In terms of timing and measurement structure, most studies relied on single-timepoint or retrospective data collection, often asking participants to reflect on prior drills, trainings, or school years. A coherent cluster of investigations employed three-wave longitudinal or repeated cross-sectional designs, typically aligned with a baseline, post-drill/pre-training, and post-training/drill sequence across an academic year. Only a small

number of studies collected data proximal to a drill event (immediate pre/post or post-test only), and very few captured repeated real-time observations across multiple drills or school years.

Reporting of eligibility criteria and sampling boundaries was inconsistent. While some studies clearly specified inclusion criteria (e.g., public school attendance, English proficiency, ASD-focused experience, grade-level restrictions), many did not explicitly document eligibility parameters. Several studies also included explicit boundary considerations, such as excluding younger grades for developmental validity, treating repeated samples as independent cross-sections, or relying on retrospective reports from non-K-12 populations. Collectively, the evidence base reflects a field that emphasizes adult work-force perspectives and retrospective designs, with notable gaps in developmentally stratified, student-centered, and proximal outcome measurement, particularly in early childhood and elementary contexts. Table 2 details these findings.

Table 2. Study Characteristics Summary Table ($n = 27$).

Ref.	Participants/Setting	Grade/Age Focus	Design	Methods & Analyses	Timing & Measurement Structure	Eligibility/Boundary Notes
1	Teachers, administrators, guidance counselors (K-12)	Elementary–High	Survey + secondary data (mixed)	Survey; mixed methods	One-time; retrospective past 12 months	ASD experience in prior 12 months
2	Children	Ages 8-10 (Grades 2-5)	Pilot qualitative	Interviews	Single timepoint, post-drill	Public school; ≥ 1 drill lifetime
3	Multidisciplinary adults (K-12 staff, SROs, university students, admin)	Adults	Within-subjects experiment	Factorial experiment (quant/qual)	2-week simulation; repeated measures	Volunteer sample
4	High school teachers	Grades 9-12	Simulation + qualitative	Focus groups; thematic analysis	Real-time over 2 weeks	NR
5	Parents/caregivers	K-12 children	Cross-sectional survey	Regression; moderation	One-time; retrospective past year	English proficient; child in public school
6	Teachers/paraprofessionals (ASD classrooms)	Students aged 4-8 (via adults)	Sequential mixed methods	Survey + interviews	Retrospective 2018–19; unclear timing	Specific child with ASD
7	Students	Grades 4-12	Post-test-only evaluation	Logistic regression; <i>t</i> -tests	≤ 1 month post training	NR
8	Adults (school staff, law enforcement, healthcare, business)	Adults	Quasi-experimental simulation	Pre/post survey	Before & after each simulation	No student participants
9	Principals	K-12	Ex post facto survey comparison	Inferential stats	Two school years	NR
10	Adolescents/young adults	Ages 14-24	Mixed methods survey	Descriptives; thematic	Single timepoint	Boundary sample

11	Students	Grades 9-12	Quasi-experimental pre-post	<i>t</i> -tests; EFA	1 week pre & immediate post	NR
12	Teachers	K-12	Cross-sectional survey	SEM; CFA	COVID-era; reflective	NR
13	K-12 & adult schools	Elementary–Adult	Mixed methods archival/field	Grounded theory + quant	2005–2007 mixed timing	NR
14	Adolescents & caregivers	Grades 6-12	Cross-sectional dyad	Chi-square; Wilcoxon	Single timepoint; retrospective	ED context
15	Students + workforce	Grades 6-12	Quasi-experimental longitudinal	ANOVA; OLS	3 waves (Sept–Nov–Apr)	No control
16	School personnel	K-12	Longitudinal survey	Poisson; PCA; MICE	3 waves	NR
17	School personnel	K-12	Repeated cross-sectional	Poisson; PCA; MICE	3 waves; independent	NR
18	K-12 buildings + public sites	Elementary–High	Two-study design	Neg-binomial + observation	10 drills/4 yrs + archival	Multi-sector
19	School personnel	K-12	Repeated cross-sectional	ANOVA; OLS	3 waves	NR
20	Students + schools	Grades 6-12	Repeated cross-sectional	Multinomial logit; ANOVA	3 waves; independent	Dev validity noted
21	Students (grades 6+)	Grades 6-12	Longitudinal independent waves	OLS; Clogg tests	3 waves	Grades 6+ only
22	Teachers	Grades ≥3	Cross-sectional + qual	SEM; moderation	Single timepoint	Early grades excluded
23	Recent HS graduates	Grades 9-12 (retro)	Cross-sectional from RCT	Descriptives; chi-square	2024 retrospective	Not current students
24	K–12 workforce	Adults	Two-phase mixed	Linear mixed models	Pre/post training	No students
25	College students	Ages 18-30 (retro)	Retrospective regression	Hierarchical regression	Single timepoint	Boundary concern
26	ECE practitioners	Infants–K	Qualitative mixed	Thematic analysis	COVID-era retrospective	ECE only
27	Students	Grades 4-6	Between-subjects experiment	ANOVA; chi-square	Immediate post-test	NR

Note. ASD = ANOVA = Analysis of Variance; Autism Spectrum Disorder; CFA = Confirmatory Factor Analysis; ECE = Early Childhood Education; HS = High School; K = Kindergarten; MICE = Multivariate Imputation by Chained Equations; NR = Not Reported; OLS = Ordinary Least Squares; PCA = Principal Component Analysis; RCT = Randomized Controlled Trial; SEM = Structural Equation Modeling.

2.6.2. Defining and Categorizing Lockdown Drills

Twenty-one of the 27 articles (78%) clearly indicated the type of drill conducted, with six (22%) reporting drills executed without describing the type or without procedural detail. Drill types varied substantially across studies. Common examples included traditional lockdown methods (e.g., locking doors, turning off lights, and remaining quiet) along with several plans: run-hide-fight approach, or ALICE framework (Alert–Lockdown–Inform–Counter–Evacuate). Several publications on active shooter drills focused on realistic activities such as role-play and simulated threats, while others examined broader all-hazards protocols, including Standard Response Protocol (SRP-X), and the

extended version (SRP-X–Extended) which includes lockdown, evacuation, shelter-in-place, and hold-in-place scenarios. A limited number of studies compared drills; however, such comparisons were partial in nature and did not perform an overall comparison of drills in different protocols. A few have referred to established frameworks, like SRP-X, yet definitions and operationalization for drill types have ranged widely across the literature. Consequently, drill protocols are not uniformly defined or applied, which indicates a call for a common taxonomy to facilitate comparability and enable a more robust assessment of drill effectiveness.

2.6.3. Lockdown Drill Implementation

Methods of lockdown drills implemented were explored across studies, including advance announcements, realism level, duration, frequency, and communication practices associated with drills. Twenty-three of the 27 articles (85%) documented implementation characteristics, typically exhibiting some of the same features common to most other studies. For example, many reports described a “this is a drill” announcement, often provided at least twice during an exercise to ensure clarity. The degree of realism varied in studies, with examples ranging from low-sensory tabletop exercises that did not involve students to high-sensory simulations incorporating role-play elements. Similarly, multiple articles indicated scheduling patterns, such as the number of drills conducted per school year and the timing of drills within the academic calendar. Other communication methods, such as school-wide notifications, parent letters, opt-out or opt-in procedures, and automated electronic calls to caregivers, were also reported. These issues were not consistently highlighted despite such general focus on implementation. Four articles offered no substantive information on implementation. Even in the broader sample, the studies rarely documented the specific timing of drills, how drills were scheduled throughout the school year, or precisely what kind of communication was made to parents, teachers, and staff. As a result, the existing literature demonstrates moderate coverage of implementation characteristics but limited depth and consistency in descriptions of these procedures.

2.6.4. Outcomes for Students, Staff and Caregivers

Twenty-six articles (96%) identified at least one outcome resulting from conducting lockdown drills. The one remaining article used a procedural checklist instead of measurable outcomes, yielding no reportable data. Outcome data were drawn from qualitative or quantitative methods such as surveys or interviews that were completed by students, school staff, or caregivers. Some of the most frequently used outcomes resulted from measures of emotional well-being, perceived safety, knowledge, secondary trauma, and caregiver perception. Anxiety and fear scores were the most commonly identified outcomes (96% of studies), followed by student preparedness and knowledge (89%), teacher/staff trauma (81%), then caregiver perceptions (48%). For example, Riggs et al. (2023) found that post-drill, 27% of students reported anxiety and 37% reported depression, which was significantly higher than caregivers’ reports of their children’s post-drill mental health symptoms. Similarly, Stevens et al. (2020) noted that 16% of teachers “indicated levels of secondary trauma that would warrant concern” (p. 601).

2.6.5. Trauma-Informed and Developmental Considerations

Eighteen of the 27 articles (67%) addressed trauma-informed practices, including the use of low-realism approaches, repeated “this is a drill” announcements, post-drill debriefing, and developmental adaptations such as visual aids and age-appropriate language. The remaining nine articles mentioned trauma minimally or not at all. In the 18 articles addressing trauma-informed practices, debriefing was most commonly

documented, reported in approximately 80% of studies. However, access to mental health support during or after drills was less consistent; only 40% of studies reported counselor availability, and only 36% of teachers reported having access to mental health providers as a part of the drill process.

Child-centered training approaches (e.g., CBIT, ALICE lessons) were used for children under the age of 11 (Zeugin 2025; Zhe and Nickerson 2007). In addition to using age-appropriate language, briefer scenarios were used for younger children. Although theoretical recommendations for trauma-informed practice were present across the literature, application of how to apply these recommendations was sparse. Children with prior trauma histories or severe anxiety were screened out in approximately 15% of the studies. However, in studies where screen out procedures were not available, children were not identified for individualized trauma-informed practices, and no systematic evaluation of debrief quality or follow-up support was identified.

2.6.6. Disability Inclusion and Equity

Of the 27 studies included in this review, 12 (44%) specifically addressed disability accommodations or equity-related differences in drill outcomes, while the remaining 15 (56%) did not provide a clear equity-focused framing. Of those studies that accounted for disability factors, accommodations most commonly focused on students with autism spectrum disorder (ASD) such as the introduction of visual supports, structured role-play situations, or behavioral supports that meet children's cognitive and developmental needs. But this focus on disability has tended to be narrow and limited to a small portion of student populations. Gender differences were also reported more commonly with approximately 70% of studies including the reported higher levels of fear or anxiety among female students versus 28% indicating higher perceived safety among male students. Racial and ethnic factors, in contrast, were considerably less discussed. While five studies reported participant sample demographic breakdowns, none conducted analyses that explored differences by race or ethnicity in outcomes. Thus, equity considerations were an apparent theme across the literature but implemented inconsistently and with little depth. Most notably, no study examined outcomes at multiple intersecting identities (e.g., race, disability, and gender at the same time), thus representing a major gap in an understanding of how school safety drills may impact various types of student populations. These findings taken together illustrate the necessity of a number of more inclusive drill protocols that target a far wider spectrum of disabilities, and a more systematic intersectional analysis that considers outcomes across the axes of race, gender, disability status, and socioeconomic context.

2.6.7. Evidence Gaps

Among the 27 studies, 20 (74%) specifically cited a gap in the literature or offered a policy-relevant recommendation, while seven did not have a clearly communicated gap statement. The most common limitation that was reported was not using robust experimental designs which could link drill fidelity to measurement of outcomes. The majority of the included studies used cross-sectional or pre-post designs without follow-up, rendering it difficult to conclude the extent to which knowledge gained or psychological effects remained relevant over time. Other gaps indicated that conceptualization and measurement issues were not well-defined and similar across studies. The authors often cited the absence of a standardized drill protocol framework as an overarching limitation of comparability among studies and of generalizability. Measurement constraints were also visible, including a paucity of validated instruments, especially for staff and caregiver outcomes, and insufficient consideration for at-risk populations: this would include students with baseline anxiety or trauma data. Additionally, few studies related drill

strategies to real-life contextual variables, like real school violence occurrences or association with local police, and therefore limited the ecological validity of their findings.

Equity-focused studies also seemed to be scarce; very few studies focused on demographic variables other than sex differences. Thus, an intersectional framework that takes race, gender, disability and socioeconomic context into account still remains largely lacking in the literature. In response to these limitations, scholars repeatedly urged more rigorous and standardized approaches, such as for the use of waitlist-controlled or quasi-experimental designs, longitudinal follow-up, national standardization of drill protocols, multi-observer fidelity assessment, and inclusion of more diverse and representative samples.

2.6.8. Research Question (RQ) Mapping

To further examine how each of these key areas manifest across the literature, the authors mapped each study to the six guiding research questions, with attention to both the frequency and depth of coverage. Across included studies, RQ6 was universally represented (100%), with the largest proportion coded as explicit (40.7%). RQ2 and RQ3 were also prevalent (each 88.9%), though most instances were coded as mentioned without depth qualifiers. RQ4 and RQ5 showed the most limited depth, with coverage more often partial/indirect than explicit. A summary of these counts is presented in Table 3.

Table 3. Depth of Research Question Coverage Across Included Studies ($N = 27$).

Research Question	Explicit <i>n</i> (%)	Partial/Indirect <i>n</i> (%)	Mentioned (Unspecified) <i>n</i> (%)	Total Addressed <i>n</i> (%)
RQ1—Drill Type	3 (11.1)	8 (29.6)	7 (25.9)	18 (66.7)
RQ2—Implementation	3 (11.1)	4 (14.8)	17 (63.0)	24 (88.9)
RQ3—Outcomes	6 (22.2)	1 (3.7)	17 (63.0)	24 (88.9)
RQ4—Trauma-Informed	3 (11.1)	6 (22.2)	5 (18.5)	14 (51.9)
RQ5—Disability/Equity	1 (3.7)	7 (25.9)	7 (25.9)	15 (55.6)
RQ6—Gaps	11 (40.7)	1 (3.7)	15 (55.6)	27 (100.0)

Note. *Explicit* indicates the study was coded as explicitly addressing the RQ (e.g., “explicitly,” “clear”). *Partial/Indirect* indicates the study was coded as partially or indirectly addressing the RQ. *Mentioned (Unspecified)* indicates the RQ was listed in the study’s codes without an explicit depth qualifier. Percentages are calculated using $N = 27$ included studies.

3. Discussion

This scoping review highlights an emerging yet methodologically heterogeneous body of literature on K-12 lockdowns and active threat drills. Across the 27 included studies, schools engage in some form of drill activity at the highest frequency, and the literature partially converges with national guidance highlighting advance notice, low realism, and post drill debriefing. Collectively, though, the findings highlight a persistent gap between procedural practice, psychological outcomes, and considerations of equity, constraining the field’s capacity to make defensible propositions about the benefits or harms of existing drill practice. A central contribution of this review is demonstrating that the field lacks an inclusive conceptual and measurement framework, as evidenced by the absence of a standardized taxonomy for lockdown drills. While most studies state a protocol (standard lockdown, multi-option drills like ALICE, active shooter drill), definitions can be varied and confused across studies. This non-standardization makes it difficult to synthesize across different findings and makes meaningful comparisons of outcomes based on drill type challenging. The absence of a consistent protocol for labeling or operational

definitions leaves open the question of whether differences between students' and staff's outcomes might reflect the drill itself, the strength of implementation, or contextual factors specific to each school.

By contrast, the review indicates a striking imbalance between the number of times psychological outcomes are measured and the rarity of objective fidelity assessments that measure how well a program is actually implemented. Although student anxiety, perceived safety, and staff secondary trauma tend to be common issues described, most studies include self-reported descriptions of drill procedures, rather than systematic observations of procedural integrity (e.g., whether a door has been successfully locked, whether an announcement was accurate, or whether a debrief has been conducted). As a result, the literature has documented harm or distress associated with drills, but it has not consistently determined whether these outcomes come from poor implementation, the level of realism, or the drills themselves.

The review points to a clear theory–practice gap in trauma-informed implementation in the literature. While many studies mention trauma-informed principles (e.g., repeating “this is a drill”, minimizing sensory realism, and offering debriefs), practice is inconsistent. Short debriefs are routine, but continued access to mental health supports before and after drills is rare. Furthermore, for younger students, trauma-informed adaptations are more frequently articulated, in comparison to adolescents or staff, despite research showing that educators can experience secondary traumatic stress as a result of drill participation. Synthesizing evidence from studies conducted across multiple national contexts, these findings suggest that trauma-informed practice is often conceptualized as an aspirational strategy rather than operationalized as a systematic approach to drill design.

Equity-based findings also add to existing evidence gaps. While several studies identify gender differences in fear or anxiety, and a smaller amount of research looks at accommodations for students with disabilities, especially those diagnosed with autism spectrum disorder, inclusive equity analyses are rare. There was no study in the mapped literature assessing outcomes across disability status, race or ethnicity, and socioeconomic indicators. This omission is particularly important in light of long-standing disparities in school discipline (policing and procedures), exposure to trauma, and access to mental health support among student populations. In the absence of equity-focused studies, current drill research threatens to normalize practices that may not address the unique challenges of already disadvantaged students.

4. Limitations

When interpreting the findings of this scoping review, several limitations should be taken into account. First, in keeping with the aim of scoping reviews, this research sought to identify the scope, characteristics, and gaps in the empirical literature, rather than to assess the effectiveness of lockdown drills or clarify causal relationships between drill practices and outcomes. Therefore, no formal determination of study quality or risk of bias was made, and results should not be accepted as evidence for effectiveness or harm. Second, while the inclusion criteria for this review were comprehensive, the review was confined to peer-reviewed, English-language empirical studies from U.S. K-12 settings published from 2000 to the present. Studies from other contexts or from previously published reports, unpublished assessments, district reports, or non-English sources were not covered. Furthermore, the literature that pertained to fire drills or postsecondary venues was excluded unless they were explicitly connected to threat preparedness, which may have limited the amount of safety literature incorporated. Third, significant diversity in terminology, drill varieties, deployment techniques, and outcome metrics in the included studies restricted comparisons. Such lockdown exercises were frequently categorized differently (e.g., lockdown, active threat, intruder response) with various implementation

constructs such as realism, announcement practices, and fidelity variably defined and reported. This variability limited the ability to draw on best practices for cross-study conclusions. Fourth, data charting focused on data reported in published articles; therefore, not all of this should be reflective of actual implementation processes, adaptations based on trauma-informed treatment, or multidisciplinary engagement. Notably, procedural fidelity, mental health supports, and equity-focused practices were repeatedly under-explained during findings that limited the conclusions related to Research Questions 4 and 5. Lastly, while this review looked at whether disability inclusion and equity were covered in the literature, intersectional analyses on disability status, race or ethnicity, gender, and socioeconomic context were infrequent or nonexistent. As a result, conclusions regarding equity remain constrained by gaps in the underlying evidence base rather than by the charting process itself. These limitations highlight the need for future research using standardized terminology, rigorous and transparent reporting of implementation fidelity, and designs that center trauma-informed and equity-focused outcomes across diverse K-12 school contexts.

Implications for School-Based Mental Health Practice and Research

The findings of this scoping review have direct implications for how school-based mental health professionals (school counselors, social workers, psychologists) understand and carry out their role in the context of lockdown drills. For instance, school counselors occupy a particularly important position in the school community, as they are professionally responsible for promoting students' social-emotional wellness and are frequently named as active members of school crisis and preparedness teams (American Counseling Association 2018; American School Counselor Association 2019a, 2019b). Yet the evidence mapped in this review suggests that school counselors remain underutilized in the drill process. Only 40% of studies reported any form of counselor availability during or after drills, and only 36% of teachers reported having access to mental health providers as part of the drill experience. These figures point to a meaningful gap between professional expectations and actual practice.

Research by Goodman-Scott and Eckhoff (2020) and Eckhoff and Goodman-Scott (2023) has documented that school counselors themselves often feel uncertain about their roles during lockdown drills, questioning whether assigned tasks such as simulating a threat actor by testing locked doors, are consistent with their professional identity and therapeutic relationships with students. This is a reasonable concern. Trust and relational safety are foundational to the school counselor's effectiveness, and roles that undermine that trust carry real consequences for students who may most need support before or after a drill. School counselors should be explicitly included as core members of the multidisciplinary teams that plan, implement, and evaluate drills, with roles that align with their training and their professional ethical obligations. The same logic applies to school psychologists and school social workers, whose training in mental health assessment, intervention, and family engagement positions them to contribute distinct expertise to drill planning and post-drill support; role ambiguity of the kind documented among counselors is likely to extend to these professionals as well and warrants similar attention. Frameworks such as the PREPaRE model, which centers collaborative, team-based school safety planning inclusive of school-based mental health professionals, offer a useful structure for formalizing these roles at the district and building level (Cruz et al. 2025). Professional associations, including the American School Counselor Association (ASCA), American Counseling Association (ACA), National Association of School Psychologists (NASP), and the School Social Work Association of America (SSWAA) should develop explicit position guidance on these professionals' roles in lockdown drill processes, an area that remains underdeveloped in current policy and standards.

Beyond role clarification, this review underscores the importance of trauma-informed practice as an active, structured responsibility rather than an aspirational framework. Across the 27 studies reviewed, 18 addressed trauma-informed practices in some form, but the depth of implementation varied considerably. Debriefing was the most frequently documented practice, reported in approximately 80% of studies; however, it was often brief and primarily procedural. Meaningful processing of students' emotional reactions, led by school mental health professionals before and after drills, and particularly for students known to carry trauma histories was rarely documented. This matters because, as multiple studies in this review demonstrate, students are affected by drills even when they know the event is not real. School counselors reported students describing mini-meltdowns, crying, running, and, in some cases, missing school in the days following a drill (Goodman-Scott and Eckhoff 2020). Post-drill, 27% of students in one study reported anxiety and 37% reported depression symptoms, figures significantly higher than their caregivers' estimates of their children's distress (Riggs et al. 2023). Structured pre-drill preparation and post-drill processing, facilitated by school mental health professionals using developmentally appropriate approaches.

There is also a clear need for school-based mental health professionals to advocate for and provide individualized support to students who are most vulnerable during drill experiences. Only 15% of the studies reviewed reported any form of pre-drill screening for trauma history or severe anxiety, and students with disabilities, prior trauma exposure, or elevated baseline anxiety are rarely identified for individualized accommodations. This is concerning given that approximately two-thirds of youth in the United States have experienced a traumatic event by age 16 (Substance Abuse and Mental Health Services Administration 2017), and that the research documents heightened distress among students with autism spectrum disorder, girls, and students from communities with high exposure to violence. Within a Multi-Tiered Systems of Support (MTSS) framework, school counselors can take a leadership role in identifying students who may need Tier 2 or Tier 3 support following a drill and in ensuring that individualized plans address participation, accommodation, and follow-up in a coordinated and proactive way.

Caregiver communication is another area where school-based mental health professionals are well-positioned to make a meaningful contribution. Research demonstrates that family-school connectedness is one of the strongest predictors of how positively caregivers view lockdown drills, while media exposure to school shooter events is an independent predictor of more negative perceptions (Dailey et al. 2026). Because caregiver anxiety can cross over to children through what stress researchers call stress crossover effects, poorly informed or worried caregivers may inadvertently amplify the distress their children experience. For example, school counselors can design and lead parent education efforts that provide accurate context about drills, explain what supports are in place for students, address common misconceptions, and create space for caregiver concerns to be heard and responded to directly.

From a research perspective, several priorities emerge for the fields concerned with school mental health, including counseling, school psychology, and school social work. Future studies should disaggregate survey results of teachers and school-based mental health professionals, rather than simply providing aggregate results of all educational professionals. While all educators' perceptions are valuable, school-based mental health professionals' experiences in planning, implementing, and following up on drills, and the outcomes they observe in students and carry themselves, represent an important and largely unmapped dimension of the literature. Additionally, graduate preparation programs across school mental health professions, such as counselor education programs, should explicitly address trauma-informed emergency preparedness as a professional competency, including how to lead structured debriefs, how to work with students with

trauma histories in the context of mandated safety activities, and how to advocate for evidence-aligned practices at the school and district level. The findings of this review make clear that drills will continue to be part of K-12 school life for the foreseeable future. The question is not whether school-based mental health professionals should be involved, but how that involvement can be structured to offer the greatest possible protection to students, staff, and the broader school community.

5. Conclusions

The current scoping review maps 27 peer-reviewed empirical studies of K-12 lockdown drills using a PRISMA-ScR framework across six research questions that concern definitions, implementation, outcomes, and attention to trauma-informed, developmental, disability-inclusive, and equity considerations. Although the evidence base has grown in recent years, it remains uneven in rigor, inconsistent in terminology, and limited in its attention to those most at risk of harm. Overall, the literature does not support simple conclusions about the advantages or disadvantages of lockdown drills. However, reported psychological harms, such as increased anxiety, depression, and secondary trauma, appear more consistent and enduring than the protective effects associated with improved preparedness or reduced risk during real threats.

Several cross-cutting patterns emerged. First, despite their widespread use, lockdown drills are poorly defined, informed by diverse theoretical perspectives, and lack a unified taxonomy. Second, although implementation is better documented than in previous decades, detail on fidelity, communication with families and staff, scheduling, and adherence to protocols is often absent. Third, while psychological outcomes have been a key focus of the literature; there are very few objective measures of readiness, outcomes in the long-term, or impact on staff and caregivers. Fourth, trauma-informed methods are more prevalent and supported but rarely implemented, with significant shortcomings around counselor participation and pre-drill screening for at-risk students. Finally, disability accommodations and equity analyses are relatively uncommon, and no work has looked at outcomes for race, disability status, and gender at the same time despite evidence of differential impact.

Recent policy recommendations (e.g., NASEM 2025; NASP 2026) indicate growing concern with the current situation. Guidance regarding avoiding high-intensity simulations, ensuring developmentally appropriate communication, emphasizing the interests of students with disabilities and marginalized communities, and engaging school mental health professionals closely follows the limitations identified in this review. To move toward these recommendations will need to come through stronger, equity-centered research. It is important to note that these findings are drawn from studies of varying methodological quality and should be interpreted as reflecting broader reporting trends rather than definitive clinical outcomes. Future research should focus on longitudinal and quasi-experimental studies that relate fidelity to implementation to psychological and behavioral outcomes. Some base needs include standardized drill taxonomies and validated measures for students/staff/caregivers. Studies should support intersectional analyses, engage underrepresented populations (notably early childhood), and directly sample school counselors, caregivers of students with disabilities, and communities most impacted by violence. Schools are legally and morally obligated to prepare for threats while limiting harm. This review furthers that dual aim with its identification of gaps in what is known and what is not, as well as foundational evidence for the more trauma-informed and equity-centered school safety practices needed.

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