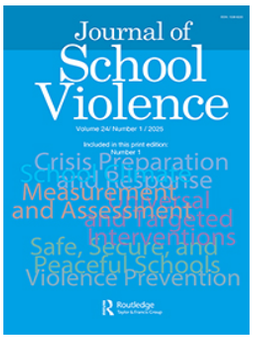

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School Threat Assessments of Firearm and School Shooting Concerns

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ABSTRACT

Using data from a Northwest school district (2012–2019), this study examines general firearm concerns and specific school shooting threats present in school threat assessments ($N = 294$). Findings illustrating firearm concerns were present in more than half of threat assessments; school shooting threats were the most common type of firearm concern; and leakage of school shooting threats was commonly reported by fellow students. Like students with other firearm and non-firearm concerns, students who made school shooting threats were often 10–15 years old, suicidal, and had experienced peer conflicts as precipitating events. In comparison to students with non-firearm concerns, students who made school shooting threats were more often male and less likely to engage in aggressive acts. Findings offer implications for threat assessment professionals and scholars examining school violence.

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School shootings; threat assessment; school safety; firearm violence prevention

Since the 1999 Columbine High School shooting, there has been pervasive media attention, public concern, and calls for action surrounding school shootings in the United States (PBS, 2023; Silva & Capellan, 2019). To address this concern, American schools began increasingly using behavioral threat assessment and management (often shortened to "threat assessment") teams to identify and assess the behavior of students who threaten other students, staff, and/or school visitors (Comer, 2024; Cornell, 2020). The federal government has provided guidelines on threat assessment procedures and implementation (Fein et al., 2004), though the use and model of threat assessment varies across the country with school threat assessment mandated in several states, including Florida, Kentucky, Maryland, Ohio, Pennsylvania, Rhode Island, Texas, Virginia, and Washington (Everytown, 2024). In schools, threat assessment teams investigate reported threats and devise tailored responses based on the severity of the threat and the needs of the students involved (Cornell, 2020). Importantly, studies routinely find school threat assessments offer an effective violence prevention strategy aimed at helping troubled youth and ensuring school safety (Cornell, 2020; Silver, 2020).

In addition to supporting school safety broadly, a major reason for the initial implementation of threat assessments in schools was to prevent school shootings (Cornell, 2024). However, studies of school threat assessment have largely focused on their efficacy in reducing overall school violence and student aggression (Cornell et al., 2009; Nekvasil & Cornell, 2015), improving student and teacher perceptions of school climate (Cornell, 2020; Cornell et al., 2009), reducing racial disproportionality in discipline (Crepeau-Hobson & Leech, 2022; Madfis et al., 2025; Maeng et al., 2020), and preventing school suspensions and expulsions (Cornell & Lovegrove, 2015; Cornell et al., 2011). In other words, despite school threat assessment being initially created as a form of school shooting prevention (see for example: O'Toole, 2000), research examining threat

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assessment to specifically address firearm concerns and prevent school shootings remains largely unexplored.

To address this gap, this study examines general firearm concerns and specific school shooting threats present in school threat assessments. We examine threat assessments collected from a Northwestern school district using the Salem-Keizer Cascade Threat Assessment Model (hereafter SKCTAM), developed by school psychologists working for the Salem-Keizer school district in Oregon shortly after the Columbine shooting. SKCTAM is currently used throughout most public schools in Oregon and Washington, as well as in numerous other states across the country (Van Dreal et al., 2022). We examine all Level 2 student threat assessment investigations (i.e., the most serious incidents that warranted additional assessment) over seven years (2012–2019; $N = 294$).

The purpose of this study is threefold. First, this study aims to understand the prevalence and types of firearm-based concerns identified in threat assessments. Firearm concerns can include a multitude of concerning student actions and behaviors, as well as threats both within and outside the school setting. In other words, oft-considered school shooting threats are one type of firearm concern (Silva & Greene-Colozzi, 2022); however, this study initially aims to understand the overall context surrounding all types of firearm concerns (Freilich et al., 2022). As much prior scholarship has relied on media accounts to forge datasets (Daniels et al., 2007; Freilich et al., 2022; Silva & Greene-Colozzi, 2022), school threat assessment records may provide a more complete record of all types of firearm concerns. Given school shootings have sparked widespread concern and significantly influenced school policy nationwide (Madfis, 2016), this study's second goal is to specifically understand the prevalence and characteristics of school shooting threats that led to threat assessments, as well as who identified and reported these threats. The final purpose of this research is to examine the differences in student and incident characteristics between students who made school shooting threats, students with other firearm concerns (e.g., interest/fascination with firearms, shooting ideations, etc.), and students with non-firearm related concerns. While school shootings create widespread fear, they remain rare (Madfis, 2016), so investigating and comparing all of the most serious incidents of school threats offers a more holistic and comprehensive view of everyday school violence.

School threat assessment

School threat assessment is designed to identify, assess, and manage student threats to prevent violence from occurring (Cornell, 2020). Once a threat is identified, it is brought to a school threat assessment team – a multi-disciplinary group of trained professionals – including school administrators, mental health professionals/student support staff, and law enforcement (Modzeleski & Randazzo, 2018). These teams then evaluate the substance of the threat and develop plans to intervene, which may include protection for potential victims, additional surveillance measures to prevent violence, and solutions to mitigate the underlying problems or conflicts that contributed to the threatening behavior. The focus on the "threats" themselves entails a shift in mind-set away from the prediction of violence toward the prevention of violence (Cornell, 2024; Otto & Douglas, 2010). The violence risk assessment field now emphasizes prevention by identifying risk and protective factors and supporting troubled students to reduce risk (Cornell, 2020; Otto & Douglas, 2010; Yang et al., 2010). Threat assessment focuses on the substantive analysis of existing threats rather than attempts to forecast the future behavior of people based on aggregate characteristics (Cornell, 2024; Madfis, 2020).

Moving away from predictive measures, a public health approach to school violence prevention can identify and address students' risk factors for violence and promote a safe school environment without resorting to unnecessarily harsh punishments and school exclusions (i.e., suspension and expulsion) (Cornell, 2024). Ultimately, researchers stress the need for holistic school violence prevention, focusing on supportive environments, strong relationships, mental health care, and crisis intervention/de-escalation for at-risk students (Cornell, 2020; Silva & Greene-Colozzi, 2022). With these goals in mind, school threat assessment teams have resolved thousands of student threats without them resulting in

serious acts of violence, while also permitting most students to remain in or return to school (Cornell, 2020).

Studies find schools using threat assessment have seen reductions in the use of school exclusions (Cornell & Lovegrove, 2015; Cornell et al., 2011), reductions in racial/ethnic disparities in punishment (Crepeau-Hobson & Leech, 2022; Maeng et al., 2020), and improvements in student and teacher perceptions of school climate (Cornell et al., 2009; Nekvasil & Cornell, 2015). Additionally, studies of the Virginia Student Threat Assessment Guidelines have examined the content and severity of threats and leakage (e.g., Burnette et al., 2018; Cornell et al., 2004) and student willingness to report a peer bringing a gun to school (Crichlow-Ball & Cornell, 2021). Despite ongoing questions about implementing threat assessment practices effectively, it remains a vital approach with the potential to enhance school safety, climate, and equity in disciplinary practices.

Threat assessment and school shooting prevention

Studies of school shootings often focus on "rampage" (Madfis, 2020; Newman et al., 2004) or "mass" school shootings (Silva et al., 2023) involving large numbers of intended victims targeted at random. These types of studies identify several firearm-related warning signs before attacks including a fascination with firearms, ideations of violence, and interest in past mass killings (O'Toole, 2000; Schildkraut et al., 2024; Silva et al., 2023). Furthermore, individuals who carried out school shootings were often at a point of personal desperation or were suicidal (Langman, 2009; O'Toole, 2000; Silva et al., 2023), and there was often a precipitating crisis event (or acute strain) that contributed to their final decision to engage in an attack (Levin & Madfis, 2009), which is sometimes perceived to be their "last resort" (Meloy et al., 2023). To this end, it is possible to prevent school shootings by looking at whether a person's behavior and communications suggested they were on a "pathway to violence" (Calhoun & Weston, 2003). In other words, some indication that the person of concern was thinking about, planning for, or gaining the lethal capacity to engage in a school shooting (Hawes & Madfis, 2022; Schildkraut et al., 2024).

Research finds many school shooters had school-related problems (i.e., potential warning signs) (Lankford & Silva, 2021; Newman et al., 2004; Silva et al., 2023), and fellow students and teachers were the ones most likely to notice their concerning behaviors (Madfis, 2020; Silva & Greene-Colozzi, 2024). Threat assessment is a promising school violence prevention strategy focused on identifying youth with issues of anger, distress, and/or mental health – at the point where they engage in threatening statements or behaviors – and taking supportive and protective actions (Cornell, 2024). A core threat assessment concept is leakage, defined as an individual's communication to an external party of their intent to engage in targeted violence (O'Toole, 2000; Silver, 2020). Leakage can be intentional and explicit (such as attempts to recruit coconspirators, threaten others, or warn them of future violent plans), or it can involve vague allusions to violence and death. Leakage can also occur due to the inadvertent discovery of written materials concerning violence or planning. However, leakage is often easiest to interpret when it appears as a direct threat or statement of intent (Silva & Greene-Colozzi, 2022, 2024).

The U.S. Secret Service study of school shooters found 81% of student offenders had communicated to someone, usually a friend or a classmate, that they were thinking about or planned to carry out an attack at school, and multiple people were aware of these threats in 59% of their sample (Vossekuil et al., 2002). Thus, leakage is quite common and offers a crucial stage for school shooting intervention and prevention, as many attacks have been averted by students coming forward to inform school or police officials about threats after being exposed to leakage (Daniels, 2019; Madfis, 2020). For instance, Silva and Greene-Colozzi's (2022) study of foiled/failed mass school shootings found 65% of mass school shooting plots were identified and prevented through leakage. This illustrates the importance of identifying and investigating student threats as a key violence prevention strategy.

Additionally, while previous research (Daniels, 2019; Madfis, 2020; Silva & Greene-Colozzi, 2022; Vossekuil et al., 2002) has often focused on addressing traditionally conceptualized rampage/mass

school shooting threats – involving students threatening to shoot up their school and targeting numerous classmates and staff – recent studies find school gun violence encompasses a much larger problem (Comer, 2024; Freilich et al., 2022). For instance, Freilich et al. (2022) provide one of the most comprehensive examinations of firearm use and violence at K-12 schools via The American School Shooting Study. They examine any firearm incident involving at least one gunshot casualty on school grounds and ultimately conclude that many instances of school firearm violence do fit the traditional rampage/mass school shooting conceptualization. However, there has been virtually no research examining the potential threats associated with these general firearm concerns.

Finally, Madfis's (2020) research investigating averted school shootings found school and police officials identified threat assessment criteria (such as evidence of planning and preparation for an attack) to be more helpful in making evaluative decisions than criteria based on broad warning signs or profiles, and it gave them greater confidence in accurately assessing potential risks. Threat assessment criteria were also valuable for legal adjudication or prosecution when necessary (Madfis, 2020). Thus, scholars suggest the proper use of school threat assessment can be crucial in preventing school shootings (Comer, 2024; Cornell, 2020; Madfis, 2020; Silver, 2020). To this end, it is surprising that there is currently no research of any kind (quantitative or qualitative) on firearm concerns and shooting threats that have been identified and addressed by school threat assessment teams.

Current study

This study addresses previous limitations by examining general firearm concerns and specific school shooting threats present in school threat assessments. Specifically, this work examines Level 2 threat assessments collected from a Northwestern school district using the SKCTAM over seven years (2012–2019; $N = 294$). First, this study identifies the prevalence and types of firearm concerns in threat assessments. Second, this work examines the prevalence and characteristics of students who made school shooting threats, as well as who identified and reported these threats. Finally, this work identifies similarities and differences in student and incident characteristics between school shooting threats, other firearm concerns, and non-firearm related concerns. To address these three areas of inquiry, four research questions were considered:

RQ1: How prevalent are firearm concerns and what are the different types of firearms concerns being identified in threat assessments?

RQ2: How prevalent are school shooting threats in threat assessments?

RQ3: Who identified and reported leakage of school shooting threats?

RQ4: Are there differences in student and incident characteristics between students who made school shooting threats, students with other firearm concerns, and students with non-firearm concerns?

Methods

Data

The SKCTAM includes a two-tiered approach to evaluating threats with two distinct multi-disciplinary teams. Level 1 teams are site-based school teams comprising administrators, counselors, school psychologists, social workers, and/or school resource officers. The team then interviews students, teachers, parents, and anyone else with pertinent information. Level 1 teams then determine a course of action for the student and generate various interventions, resources, and supports for the

student. This team then refers the case to the Level 2 team if additional assessment is necessary. Level 2 teams are community collaborations consisting of public agencies that serve youth, which may include members of local law enforcement, juvenile justice, child protective services, mental health service agencies outside of the school setting, or specific case workers (such as juvenile probation counselors, case managers, therapists, etc.) (Van Dreal et al., 2022).

We obtained records on all threat assessments conducted in a Northwestern school district between the 2012–2013 and 2018–2019 school years. We have not identified the school district to help maintain student confidentiality. The district removed all identifying information, such as student and parent names, before researchers accessed the data. We analyze the Level 2 investigations as these assessments were utilized for the most severe incidents. We received 297 Level 2 investigations; however, three were dropped due to missing information. The current data includes 294 Level 2 investigations over this seven-year period.

Variable coding

Each investigation includes a detailed summary of events and threats contributing to student threat assessment intervention. After reviewing these summaries, we developed a codebook capturing relevant firearm and shooting concern variables, as well as available student and incident characteristic variables (see Appendix Table A1).

We initially coded any mention of concern over firearms in the threat assessment (i.e., the "firearm concern" variable). We then coded six additional variables focused on the types of firearm concern including: firearm interest, shooting ideation, toy guns, video games, shooting acts, and shooting threats. The latter variable involving shooting threats was further coded to determine school shooting threats (against staff, students, or the school in general) and other shooting threats (against peers, family, and unspecified targets). Peers refer to threats against those outside of school (i.e., excludes fellow students). By coding these additional variables on firearm concerns as binary measures (yes/no) instead of a single categorical variable, we gain precision and accuracy for cases with multiple concerns.

The noted variables provide context for all firearm concerns identified in threat assessment. However, a key focus of this study is understanding school shooting threats. To this end, three variables were compared: (1) students who made school shooting threats, (2) students with any other firearm concern (excluding school shooting threats), and (3) students with non-firearm concerns. Comparisons of these three variables identified similarities and differences in the student and incident characteristics. Student variables included their sex, age, race, and grade level, as well as if they had a reported history of suicidal tendencies (i.e., ideations, threats, and/or attempts) and/or a reported history of self-harm. Incident variables considered the precipitating event(s) that contributed to a student of concern receiving a threat assessment investigation, as well as the primary concerns that motivated the decision to enact the Level 2 threat assessment. These variables are not coded as mutually exclusive, as a threat assessment may be raised after more than one recent precipitating event and primary concern. Precipitating events refer to acute losses that trigger violence (Levin & Madfis, 2009) including school discipline, family conflict, health issues, peer conflict, and romantic conflict. Primary concerns refer to threatening words, aggressive acts, or other concerns that motivated the decision to enact a threat assessment. School shooting threats and other firearm concerns may not have been the primary concerns motivating the initial decision to engage in a threat assessment. For instance, other (non-firearm) issues or threats may have initiated the threat assessment, which later revealed a school shooting or firearm concern. For further insight, a variable captured those identifying and reporting leakage of school shooting threats including students, school staff (this is the language used in the threat assessments – although it primarily refers to teachers), school counselors, and others (outside the school).

Using the codebook, two coders coded all variables for the 294 Level 2 investigations, which were then compared to check for inter-coder reliability (using Krippendorff's alpha index). The general

methodological consensus is anything above .80 provides an acceptable level of reliability (Lombard et al., 2002), and all variables were initially above this base value. Conflicting variable coding between the two coders did not commonly occur, given the variables involved limited room for reporting error or levels of discretion. For instance, the student characteristic variables (e.g., sex, race, grade level) were taken directly from the investigations. Any discrepancies from coder error were fixed after review and cross-comparison. Any other variable discrepancies were discussed between the two coders, and a final code was determined based on the available information and what the variable was attempting to capture. We then consulted the school district to establish content validity. The school district confirmed that the codes and categorization schemes aligned with their intended meanings in their records. Specifically, we showed the school district our codebook and had them review all codes to ensure they were appropriately defined.

Data analysis

Descriptive statistics were initially used to determine the prevalence and types of firearm (RQ1) and shooting (RQ2) concerns. A figure was used to outline the bystanders identifying and reporting leakage of school shooting threats (RQ3). Except for student age, all variables were binary-coded (0=No, 1=Yes). Descriptive statistics were used to identify similarities and differences in student and incident characteristics between school shooting threats, other firearm concerns, and non-firearm related concerns (RQ4). A figure was used to outline the age distribution of these three student categories. For further insight, chi-square tests were used to determine significant differences between students who made school shooting threats and students with other firearm concerns, as well as between students who made school shooting threats and students with non-firearm related concerns. Significant differences in findings are reported in the narrative below. A t-test was used for the age variable, and Fisher exact tests were used for the few variable comparisons violating chi-square test cell size assumptions. However, none of these comparisons were significant, and they were thus not included in the narrative.

Results

Firearm concerns

This study was initially interested in the prevalence and types of firearm-based concerns identified in threat assessments (RQ1). As shown in Table 1, more than half (55%) of all Level 2 investigations identified students as engaging in at least one of the six measured firearm concerns. A total of 21% of students played violent shooting-based video games that were concerning enough for the threat assessment team to include in the investigative report. A total of 16% had a concerning interest, ideation, or fascination with shootings, while an additional 7% had a concerning interest in firearms generally. There were a few incidents that involved toy gun concerns (6%) on school grounds. That said, it is notable that no cases in the Level 2 investigations involved only what could be considered

Table 1. Descriptives of all students ($N = 294$) with firearm concerns

Variable	n	%
Firearm Concern(s)	163	55%
Firearm Interest Concern	20	7%
Shooting Ideation Concern	47	16%
Toy Gun Concern	17	6%
Video Game Concern	61	21%
Shooting Aggressive Act	4	1%
Shooting Threat Concern	109	37%

low-risk transient threats, such as students pointing their fingers like a gun or other relatively trivial student actions.

There were also four incidents (1%) that involved aggressive shooting acts, although, none of these incidents occurred on school grounds. Of these four aggressive shooting acts, three students were involved in gang-related shootings. One student was involved in a family dispute where he fired his weapon into his ceiling while at home. Ultimately, the most common firearm concern was shooting threats (37%), however, not all these shooting threats involved threats against the school.

School shooting threats

Next, this study examined the prevalence of school shooting threats (RQ2). As shown in Table 2, nearly one-third (29%) of all Level 2 investigations identified students as engaging in school shooting threats. This amounted to 85 school shooting threats during the seven years examined – an average of 12 per year. These involved specific threats against students (13%) and/or staff (11%), as well as threats against the school in general (13%). Shooting threats outside of school occurred in 10% of cases. These involved threats against family members (3%), peers (2%), and unspecific targets (5%). Seven incidents involved both school shooting threats and other shooting threats.

Leakage of school shooting threats

Scholars emphasize the importance of identifying and reporting leakage for foiling school shooting plots (Madfis, 2020; Silva & Greene-Colozzi, 2022). Accordingly, this study examined bystanders who encountered leakage of school shooting threats (RQ3). As shown in Figure 1, leakage of school shooting threats was primarily identified by students (42%; $n = 36$) and school staff (38%; $n = 32$). School counselors were much less likely to report leakage of school shooting threats (8%; $n = 7$). In a few instances, individuals from outside the school (e.g. parents and group home staff) reported leakage of school shooting threats (5%; $n = 4$).

Student and incident characteristics

Finally, this study investigated potential differences in student and incident characteristics between students who made school shooting threats, students with other firearm concerns, and students with non-firearm concerns (RQ4). As shown in Table 3, students who made school shooting threats were overwhelmingly male (92%), and the majority were White (58%). There was a relatively even distribution between students in elementary school (31%), middle school (34%), and high school (35%). Finally, 52% of students had a known history of suicidal ideation, threats of suicide, or suicide attempts, while 30% of students had a reported history of engaging in self-harm. Chi-square analyses did not identify any significant differences in student characteristics between students who made school shooting threats and students with other firearm concerns. However, students who made

Table 2. Descriptives of all students ($N = 294$) with shooting threat concerns

Variable	n	%
School Shooting Threat(s)	85	29%
Target – Staff	33	11%
Target – Students	39	13%
Target – General School	38	13%
Other Shooting Threat(s)	31	10%
Target – Peers	5	2%
Target – Family	10	3%
Target – Unspecified	16	5%

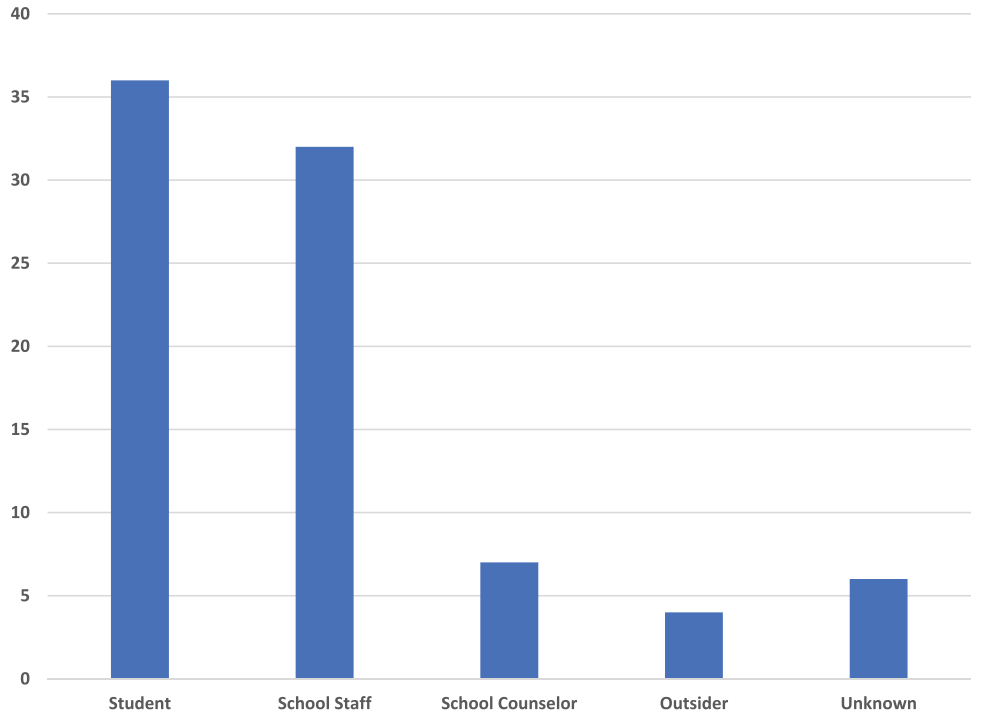

Figure 1. Bystanders identifying and reporting leakage of school shooting threats ($n = 85$).

Table 3. Comparing students who made school shooting threats with students who demonstrated other firearm and non-firearm concerns

	Students who made School Shooting Threats ($n = 85$)		Students with Other Firearm Concerns ($n = 78$)		Students with Non-Firearm Concerns ($n = 131$)	
	n	%	*n*	%	*n*	%
Sex (Male)	78	92%	75	96%	99	76%
Race (White)	49	58%	39	50%	77	59%
Grade Level						
Elementary School	26	31%	27	35%	44	34%
Middle School	29	34%	29	37%	54	41%
High School	30	35%	22	28%	33	25%
Suicidal	44	52%	41	53%	61	47%
Self-Harm	25	30%	23	30%	41	32%

school shooting threats were more likely to be male than students with non-firearm related concerns, X^2 (1, $N = 216$) = 9.1, $p = < .01$).

Figure 2 outlines the age distribution of students who made school shooting threats, students with other firearm concerns, and students with non-firearm concerns. The most common ages for students who made school shooting threats were 12 (15%), 15 (14%), and 11 (11%) years old. The most common ages for students with other firearm concerns were 13 (19%), 15 (14%), and 14 (11%) years old. The most common ages for students with non-firearm related concerns were 13 (18%), 12 (17%), and 10 (12%) years old. Overall patterns for all three student categories illustrate an increase in threat assessments between 5 and 10 years old, a peak in threat assessment between 10 and 15 years old, and a decrease in threat assessments after 15 years old.

Table 4 illustrates the precipitating event(s) and primary concern(s) that initially contributed to raising a threat assessment investigation. School shooting threat incidents most commonly involved

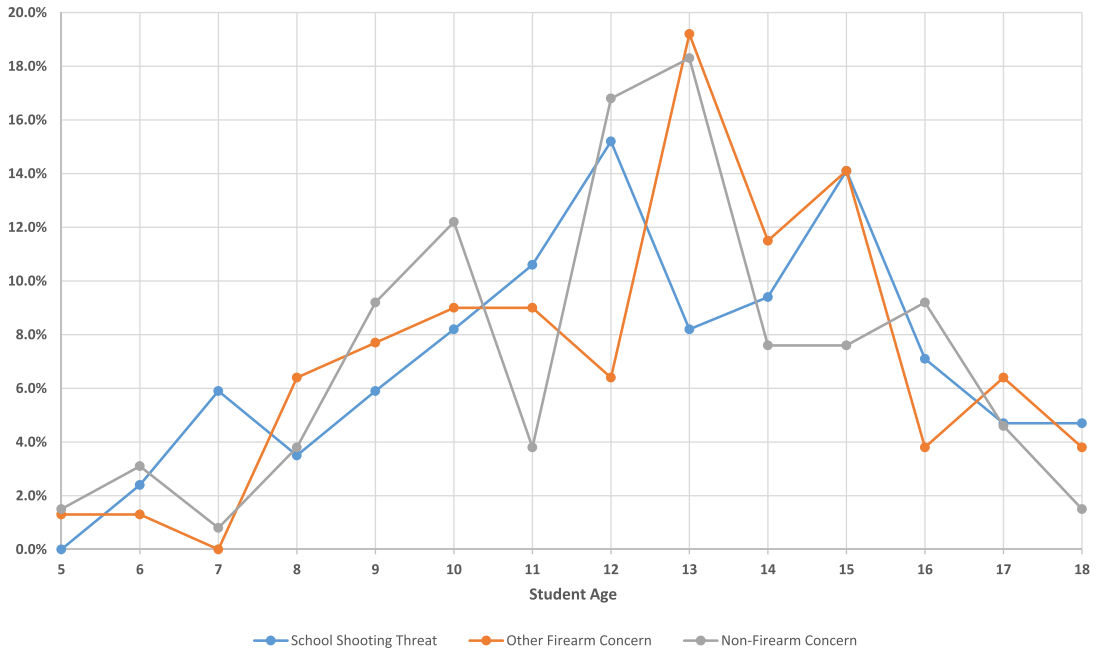

Figure 2. Age distribution of school shooting threat students, other firearm concern students, and non-firearm concern students.

Table 4. Comparing school shooting threat incidents with other firearm and non-firearm concern incidents

	Students who made School Shooting Threats ($n = 85$)		Students with Other Firearm Concerns ($n = 78$)		Students with Non-Firearm Concerns ($n = 131$)	
	n	%	*n*	%	*n*	%
Precipitating Event(s)						
School Discipline	29	34%	29	37%	64	49%
Family Conflict	13	15%	16	21%	21	16%
Health Issue	10	12%	8	10%	12	9%
Peer Conflict	51	60%	42	54%	70	53%
Romantic Conflict	6	7%	3	4%	6	5%
Other	5	6%	7	9%	3	2%
Primary Concern(s)						
Threatening Words	76	89%	51	65%	87	66%
Aggressive Act	23	27%	28	36%	68	52%
Other Concern	4	5%	10	13%	8	6%

peer conflict (60%) or school discipline (34%) as precipitating events. Less common precipitating events included family conflict (15%), health issues (12%), and romantic conflict (7%). The chi-square analyses did not identify any significant differences in precipitating events between students who made school shooting threats and other firearm concern students. However, students who made school shooting threats were less likely to have a discipline related precipitating event than non-firearm-concern students, X^2 (1, $N = 216$) = 4.6, $p = < .01$).

Inherent in the coding of the school shooting threat variable, the primary concern raising the threat assessment involved threatening words (89%). However, this illustrates that 11% of school shooting threats were identified either: (1) prior to the primary incident raising the threat assessment, or (2) after the incident, during a discussion with the threat assessment team. Students who made school shooting threats also engaged in aggressive acts (27%) and/or other primary concerns (5%) that initiated the initial threat assessment. Chi-square analyses revealed students who had made school

shooting threats were more likely to engage in threatening words than students with other firearm concerns, X^2 (1, $N = 163$) = 13.6, $p = < .001$) and students with non-firearm concerns, X^2 (1, $N = 216$) = 14.7, $p = < .001$). Students who had made school shooting threats were also less likely to engage in aggressive acts than non-firearm-concern students, X^2 (1, $N = 216$) = 13.1, $p = < .001$).

Discussion

This study initially provides insight into the prevalence and types of firearm concerns identified in school threat assessments. Findings illustrate more than half (55%) of all Level 2 investigations identified students as engaging in at least one of the six measured firearm concerns. The most common student issues included shooting threats (37% of firearm concerns), concerns about students playing violent shooting-based video games (21% of firearm concerns), and students having a concerning interest or fascination with shootings (16% of firearm concerns). The other three types of firearm concerns (firearm interests, toy guns, and actually engaging in a shooting) were relatively rare (14% of firearm concerns combined).

It is notable that firearm concerns were present in the majority of threat assessments and that shooting threats were the main issue among these firearm concerns. Threat assessment was originally brought to school settings to prevent school shootings (Cornell, 2024); however, prior scholarship has often focused on other beneficial outcomes (Cornell, 2020; Silver, 2020). Thus, this study shows that threat assessment has been successful for one of the main tasks it was initially intended to address: identifying and assessing threats of student gun violence. That said, this does not necessarily mean that it can prevent all violent incidents (see for example: Goodrum et al., 2018; Schildkraut et al., 2024).

In addition, there have been many high-profile incidents of students being excluded from school for trivial behavior such as pointing a piece of chicken at a teacher and saying "Pow, pow, pow" (Madfis, 2020) or pointing their finger like a gun (Swaby, 2024). Though 6% of Level 2 incidents involved toy guns, for example, these cases were part of a pattern of violent and threatening behavior, often related to other firearm concerns. A fundamental aspect of threat assessment is distinguishing low-risk transient threats from serious substantive threats – an approach directly designed to combat the problematic zero-tolerance practice of simply suspending or expelling kids for a wide variety of often harmless behaviors deemed "threatening." Accordingly, our study confirms this, as no cases in the Level 2 investigations mentioned these trivial incidents as the primary concern.

Cornell (2020) suggests school threat assessments have the potential to help troubled students who might commit a school shooting, as well as students on a pathway that might lead to a shooting outside of school. This study finds nearly one-third of threat assessments involved threats of school shootings, and 10% involved shooting threats against peers, family members, and others outside of school. This means school threat assessment teams are actively identifying (and potentially preventing) many particularly troubling threats of targeted violence both in and out of school. Importantly, this study finds that this one Northwest school district experienced an average of 12 school shooting threats per year that warranted a Level 2 response, which is critical for advancing understanding of foiled school shooting scholarship.

Previous foiled/averted school violence research has largely relied on open-source data (predominantly media coverage) to capture available cases (Daniels et al., 2007; Madfis, 2020; Silva & Greene-Colozzi, 2022). Scholars note that they likely undercount violent school threats, given only cases that gained fairly widespread media coverage would be captured. On average, Madfis (2020) identified 19.5 thwarted school rampage plots, Daniels (2019) found 2.5 averted incidents, and Silva and Greene-Colozzi (2022) reported 4.5 foiled school shootings per year nationwide. Notably, while Silva and Greene-Colozzi (2022) limited their sample to foiled gun violence, both Madfis (2020) and Daniels (2019) also included other forms of violent school threats such as attacks with knives and explosives, demonstrating just how many more cases are present in this school district data.

Understood together, this study identified 12 cases of school shooting threats per year in a single school district, compared to other studies that identified just 2–20 cases of violent school threats (of all

types) per year for the entire country. It is worth noting that Silva and Greene-Colozzi (2022) only included foiled school shooting plots involving high levels of credibility and severity (i.e., where a plan was actually set into motion, and stopped through law enforcement intervention), which could partially account for this disparity in the quantity of school shooting threats. Many threats in this study likely would not have warranted law enforcement intervention or media attention. That said, the much higher number of cases in this single district's data suggests future studies could use threat assessment data to identify averted incidents and school threats, rather than relying solely on media accounts.

Scholars emphasize the importance of identifying and reporting leakage for foiling school shooting plots (Madfis, 2020; Silva & Greene-Colozzi, 2022, 2024). This study finds the most common bystanders encountering leakage of school shooting threats were students and school staff (largely teachers). In other words, bystanders with frequent interactions and close relationships to threatening students are better positioned to identify leakage, much more so than school counselors and law enforcement, who typically become aware of leakage only after it is reported. This aligns with prior research, though it entails a higher rate of school staff than found by Madfis (2020) and Silva and Greene-Colozzi (2024). That said, it is important to understand the context in which this occurred. Based on the threat assessment narratives, many students heard about a threat or were exposed to leakage, but a staff member ultimately reported it. This also speaks to the need for threat assessment teams to educate students and school personnel about the best ways to evaluate warning signs and the importance of bystander intervention. Ultimately, schools (and threat assessment teams) should aim to create and maintain positive climates that encourage students to intervene when exposed to threats from their peers (Cornell, 2020; Madfis, 2020)

This study also identifies the common characteristics of students who made school shooting threats, as well as the differences in characteristics between students with other firearm concerns and students with non-firearm concerns. The key student characteristic findings pertained to patterns around sex, age, and suicide risk. Unsurprisingly, students who made school shooting threats were more likely to be male than non-firearm concern students. This is consistent with prior research, which finds that 98% of all school shooters have been male (Freilich et al., 2022). To this end, this finding once again demonstrates that gender and masculinity play a major role in the etiology of school and mass shootings.

Furthermore, the age of students who made school shooting threats (and all students who underwent threat assessment generally) peaks between 10 and 15. The overall trendline shows a relatively consistent increase from 5 to 10 and then a decrease after 15. This suggests students may become more cognizant of the harms and ramifications of engaging in school shooting threats as they get older. This is consistent with Cornell and colleagues' (2004) finding that less serious transient threats were most common in elementary schools, but only 15% of student threats were substantive; while 41% and 44% of middle and high-school student threats, respectively, were substantive threats. Burnette and colleagues (Burnette et al., 2020) similarly find elementary school students (4th and 5th graders) made the most threats, but early high-school students (9th graders) made the most attempts to carry out their threats. Likewise, studies find students who engage in school shootings are often older (high-school age) (Freilich et al., 2022; Silva et al., 2023). In other words, younger students may be engaging in empty threats without realizing the ramifications; and alternatively, older students who are planning a school shooting may acknowledge the necessity of maintaining secrecy regarding their planning and preparation activities. It could also be that older students are more mature and understand that making rash threats of a shooting would get them into trouble, or that older students who are unhappy to the point of threatening violence are also more likely to have left school. Future research should further explore why threats peak at ages 10–15 and decline thereafter. This age range is why there were also no major differences between grade levels; older elementary school, all middle school (which has the lowest age range – encompassing only 3 years), and younger high-school students were the most likely to receive threat assessments.

Studies find individuals who carried out school shootings were often at a point of personal desperation or were suicidal (Silva et al., 2023; Vossekuil et al., 2002). Furthermore, Freilich et al. (2022) identified 102 firearm suicides in schools (excluding school shootings that also involved suicide) between 1990 and 2016. This study finds suicidal ideation was a warning sign for students who engaged in school shooting threats, but also more generally, for most students who had concerns deemed serious enough to warrant a Level 2 threat assessment. Thus, if schools (and society more generally) aim to address suicide risks related to threats of school shootings, such preventative measures would also be beneficial for all types of troubled students. Recognizing the prevalence of suicidal ideation among students involved in threat assessments underscores the importance of addressing mental health issues and providing appropriate support services within the school environment.

Incident characteristics reveal the precipitating events and primary concerns that led to the threat assessment being conducted. Peer conflict and school discipline were the most common precipitating events across all types of students who experienced a threat assessment. That peer conflict often precedes student threats and other concerns is unsurprising, reflecting the significant role peers play in adolescents' lives (Levin & Madfis, 2009). While studies of school shooters find they were often bullied or marginalized by their peers (Klein, 2012), peer conflict constitutes a major source of strain for adolescents more generally (Agnew et al., 2002). Additionally, school discipline as the second most common precipitating factor highlights how zero-tolerance policies and exclusionary discipline often exacerbate student anger and isolation, rather than resolving problems or conflicts (Madfis, 2020). Although, it is noteworthy that students who made school shooting threats were less likely to have a school discipline related precipitating event than non-forearm concern students. Studies find school problems are common among mass school shooters (Lankford & Silva, 2021; Newman et al., 2004); however, Verlinden and colleagues' (2000) sample of school shooters finds only 27% had ever been suspended and 10% had been expelled. Thus, future research should continue to explore the role of school discipline preceding school shooting threats.

In terms of the primary concerns that led to threat assessments being conducted, students who made school shootings threats were more likely to have engaged in threatening words than aggressive actions. This aligns with prior findings that school shooters typically threaten and leak their intentions to their peers, but sometimes lack histories of prior violent behavior (Madfis, 2020). Verlinden et al. (2000) find that 90% of school shooters had some history of aggression; however, just 13% were known to have acted violently toward others at some point before the incident. Thus, while one of the best general measures of violence risk is prior violent behavior (Moeller, 2001), for perpetrators of school violence, engaging in threatening words and leakage are often far better measures of risk (Abel et al., 2022; Silva et al., 2023). This distinction is important for threat assessment teams to ensure accurate assessments and intervention plans

Limitations

Despite the value of this study, there are inherent limitations and future research is needed. First, this study only examines one Northwest school district using the SKCTAM, and future research should consider the generalizability of these findings in other parts of the country and using other threat assessment models. Second, data limitations prevented examining how these students' problems were addressed after their threat assessments. Future research (with more available data) should consider the similarities, differences, and efficacy of strategies for handling students who made school shooting threats, students with other firearm concerns, and students with non-firearm concerns. Third, this study considers all students who made school shooting threats and identified a much higher rate than previous research examining foiled and averted school shooting plots (Madfis, 2020; Silva & Greene-Colozzi, 2022). Like previous research examining the content and severity of threats and leakage (e.g., Burnette et al., 2018; Cornell et al., 2004), future research should offer further examinations of the

severity of school shooting threats (i.e., were these empty threats or actualized plots) uncovered during school threat assessments. Fourth, this study only examined Level 2 investigations, used during the most severe cases, after the initial internal Level 1 school threat assessment team deemed it necessary to convene an additional community-level team. Though this made sense for examining serious firearm concerns in this study, it would be valuable for future research to explore the patterns and outcomes of SKCTAM Level 1 teams. Finally, the school district data lacked student disability status, preventing an examination of potential differences between students with and without disabilities. This is a limitation, as previous research has found such differences in threat assessment referrals and outcomes (Cornell et al., 2018).

Conclusion

Finding out why a student may be considering engaging in violence – and helping them solve their problems and desperation through other, nonviolent, ways – can get them off the pathway to violence. This study provides the first step toward understanding general firearm concerns and specific school shooting threats present in school threat assessments. Findings illustrate firearm concerns were present in more than half of threat assessments, and school shooting threats were the most common type of firearm concern. Leakage of school shooting threats was most commonly identified and reported by fellow students. Like students with other firearm and non-firearm concerns, students who made school shooting threats were often 10–15 years old, suicidal, and experienced peer conflicts as precipitating events. Compared to students with non-firearm concerns, students who made school shooting threats were more often male and less likely to engage in aggressive acts. These findings offer insight into the utility of using threat assessment to identify school shooting threats and other firearm concerns. Further, they stress the role that sex, age, leakage, peer conflict, and suicidal ideation play as key factors for future consideration, with valuable implications for threat assessment professionals and scholars examining school violence.

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Appendix

Table A1. Codebook.

Variable Name	Description	Operationalization
Firearm Concern Variables		
Firearm Concern	Did the threat assessment include any mention of concern over firearms? This variable is coded as Yes if any of the proceeding variables are coded as Yes in this firearm concern category.	0 = No 1 = Yes
Firearm Interest Concern	Does the student have a concerning interest or fascination with guns or gun ownership? Excludes students with a noted interest or fascination involving a violent theme (i.e., shooting ideation concern).	0 = No 1 = Yes
Shooting Ideation Concern	Does the student have a concerning interest, ideation, or fascination with shootings? Includes thoughts or dreams to kill (shoot) as well as ideation or language related to violent shooting themes. Comments solely related to gun interest or ownership are coded as a firearm interest concern rather than a shooting ideation concern.	0 = No 1 = Yes
Toy Gun Concern	Did the student engage in a concerning threat or incident related to a toy gun including a BB gun, airsoft gun, or fake look-alike gun?	0 = No 1 = Yes
Video Game Concern	Does the student play 1st person shooter games or other violent video games that were concerning enough to include in the threat assessment?	0 = No 1 = Yes
Shooting Aggressive Act	Has the student carried out an aggressive shooting-related act?	0 = No 1 = Yes
Shooting Threat Concern	Has there been any concern over the student's threats related to shootings (past or present)? This variable is coded as Yes if any of the proceeding variables are coded as Yes in the shooting concern category.	0 = No 1 = Yes
Shooting Threat Concern Variables		
School Shooting Threat	Has the student made threats of carrying-out a school shooting?	0 = No 1 = Yes
Target – Staff	If a school shooting threat, did they threaten to target staff? This includes teachers, administrators, principals, and security.	0 = No 1 = Yes
Target – Students	If a school shooting threat, did they threaten to target students?	0 = No 1 = Yes
Target – General School	If a school shooting threat, did they threaten to target the school in general?	0 = No 1 = Yes
Other Shooting Threat	Has the student made threats of carrying-out a shooting outside of school?	0 = No 1 = Yes
Target – Peers	If other shooting threat, did they threaten to target their peers? This refers to peers (e.g., friends, enemies, and romantic partners) outside of school.	0 = No 1 = Yes
Target – Family	If other shooting threat, did they threaten to target their family?	0 = No 1 = Yes
Target – Unspecified	Was the target of the shooting threat not specified, unknown, or unclear?	0 = No 1 = Yes
Shooting Aggressive Act	Has the student carried out an aggressive shooting-related act?	0 = No 1 = Yes
Leakage Variable		
Bystander Encountering Leakage	Who identified and reported leakage of school shooting threats?	1 = Student 2 = School Staff 3 = School Counselor 4 = Other 5 = Unknown
Student Variables		
Sex	What was the student's sex?	0 = Female 1 = Male
Age	How old was the student at the time of the threat assessment?	Continuous
Race (white)	Was the student white?	0 = No 1 = Yes
Grade Level	What grade level was the student in at the time of the threat assessment? Following the district grade levels: Elementary School (K-5), Middle School (6–8), High School (9–12).	1 = Elementary School 2 = Middle School 3 = High School
Suicidal	Did the student have reported history of engaging in suicidal ideations, threats of suicide, or suicide attempts?	0 = No 1 = Yes
Self-Harm	Did the student have a reported history of engaging in self-harm?	0 = No 1 = Yes

(*Continued*)

Table A1. (Continued).

Variable Name	Description	Operationalization
Incident Variables		
Precipitating Event(s)	What were the precipitating events that contributed to a student of concern receiving a threat assessment investigation? These variables are not mutually exclusive, as a threat assessment investigation could be raised due to more than one primary precipitating event.	See variables below.
PE – School Discipline	Did the precipitating event involve punishment or disciplinary action taken against the student, such as suspension, expulsion, loss of graduation, or other restriction such as "challenges to freedom" or "limitations on liberty"?	0 = No 1 = Yes
PE – Family Conflict	Did the precipitating event involve conflict between student and family member(s), such as argument with parent or sibling, death in family, or disruption with foster placement?	0 = No 1 = Yes
PE – Health Issue	Did the precipitating event involve the student experiencing a health issue, such as a new diagnosis, medication issue, mental health crisis, or physical health issue?	0 = No 1 = Yes
PE – Peer Conflict	Did the precipitating event involve conflict between the student and peers, such as gang disputes, bullying, or fights?	0 = No 1 = Yes
PE – Romantic Conflict	Did the precipitating event involve conflict between the student and a romantic interest, such as a rejection or break-up?	0 = No 1 = Yes
PE – Other	Did the precipitating event involve some other situation that was not captured by discipline, family conflict, health issues, peer conflict, or romantic conflict?	0 = No 1 = Yes
Primary Concern(s)	Did the student engage in a primary threat or aggressive act that motivated the decision to enact a threat assessment? Threatening words and aggressive acts are not coded as mutually exclusive.	See variables below.
PC – Threatening Words	Did the student engage in threatening statements that motivated the decision to enact a threat assessment?	0 = No 1 = Yes
PC – Aggressive Act	Did the student engage in an aggressive physical act (e.g., punching, throwing something at someone, etc.) that motivated the decision to enact a threat assessment?	0 = No 1 = Yes
PC – Other Concern	Was the threat assessment raised due to other concerns that did not involve threatening words or aggressive acts?	0 = No 1 = Yes